The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXI, No. 17 CHICAGO, ILLINOIS OCTOBER 25, 1913

SOME NEWER METHODS OF REDUCING THE MORTALITY OF OPERATIONS ON THE PELVIC ORGANS *

GEORGE W. CRILE, M.D.
CLEVELAND

Since the inauguration of the aseptic era the mortality-rate in abdominal operations has been falling steadily and to-day there are practically no deaths from simple abdominal operations for conditions unaccompanied by organic disease or infections.

This reduced mortality-rate is due in part to an improvement in technic, but very largely to the exercise of an increasingly critical judgment on the part of the surgeon in his selection of cases.

The technic has become standardized for such routine operations as the removal of benign tumors of the pelvic organs and for operations for chronic pyosalpinx, procidentia, prolapsus uteri, etc. The rare fatalities which occur in these apparently favorable cases result from some unforeseen and as yet uncontrollable factors such as embolism.

The results secured by the individual surgeon have come therefore to depend on two factors: his mastery of general operative technic and his policy in the selection of cases for operation.

The reclamation of the handicapped patient, however, has been and is one of the most cogent surgical problems. Mortality-rates would indeed be high were they based only on operations on patients with hypertension or hypotension, the result of infections or organic diseases; but I believe that even in these cases patients may be operated on successfully, not only without fatal end-results, but without the familiar train of disastrous sequelae, so disheartening to patient and surgeon alike.

If operations on handicapped patients can be postponed safely, the underlying causes of the hypertension or hypotension may often be combated successfully. Physiologic rest, diet and special therapeutic measures may avail to bring the patient to a condition in which operation may be safely attempted. The handicapped patient has been searchingly studied by the able chairman of this section, Dr. Simpson.

Our problem is (1) to discover what may be the special risks when operation cannot be postponed; and (2) to evolve means by which those risks may be obviated or minimized.

The natural sequelae in hypertension cases are embolism, thrombosis, renal insufficiency, angina, pneumonia and cardiac failure. The same train of disastrous results may be seen in persons with hypertension who have been injured in accidents, and also in physically uninjured persons who have undergone some severe psychic shock. Since both psychic and physical strains produce identical results in patients with hypertension, it would seem that the seat of danger must be found at the final point of meeting of both psychic and physical impressions—that is, in the brain tissue.

A long series of laboratory experiments on animals subjected, some to emotional excitation, and others to physical trauma under anesthesia, showed that identical brain-cell changes were caused in each case. That is, both physical and psychic stimulation exhaust the physical substance of the brain cells. Emotional stimulation not only causes brain-cell deterioration, but produces also an increase of the internal activating secretions—epinephrin, thyroid secretion, glycogen—a vital point in cases of hypertension.

A logical conclusion from these experiments was that if an operation could be so performed that no traumatic impulse could reach the brain, and if in addition all emotional stimuli connected with the operation could be removed or reduced to a minimum, then the dangers of operation would be those only which would result from the local injury inflicted. Brain-cell exhaustion would be prevented, as would the disastrous effect of the presence in the body of increased amounts of the energizing products of internal secretions.

TECHNIC

From these premises I have evolved an operative method which I have named anoci-association because by its use all nocuous, or noci-associations are cut off from the brain. The complete operative procedure under this principle includes a lessening of the pre-operative psychic strain by the administration of solacing drugs; the administration of a general inhalation anesthetic to obliterate harmful impressions in the course of the operation; the progressive use of a local anesthetic to prevent the passage to the brain of traumatic stimuli from the field of the operation, and finally the use of a local anesthetic of lasting effect that the tissues may be kept relaxed and that painful after-effects may be eliminated or minimized.

In such an operation the brain cells have been subjected to no exhausting strain from painful impulses received through contact ceptors; and since the special senses have been closed to all impressions no psychic stimuli have reached the brain, so that the energizing organs in turn have not been pushed to increased activity.

From an operation conducted after this technic the patient with hypertension will emerge not only no worse for the experience, but it may be in actually better condition, because the body and brain have been so completely at rest.

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

The same technic avails also for the patient with hypotension whose brain cells are already weakened and exhausted by the anemic condition. In hypotension we have a definite and efficient remedy, for the condition is logically to be met by direct transfusion of blood; as occasion demands, this may be done several days before, just before, during the operation, or immediately thereafter. In these cases of hypotension, however, the margin of safety is much reduced, for some brain cells may have deteriorated from exhaustion beyond the power of resuscitation by rest or transfusion, so that it is of vital importance so to perform the operation that the already diminished resisting powers of the patient may not be further depleted.

In addition to the psychic and traumatic dangers in operations on handicapped patients, one other operative factor—the anesthetic—should receive most careful consideration.

Ether anesthesia has certain advantages. It is relatively safe in inexperienced hands; its bulk is small; it is inexpensive; it requires the simplest apparatus for administration. Against ether, however, stand certain ill effects, objectionable always, but of peculiar danger to patients with hypertension. However skilfully it may be administered it always induces a period of psychic stress in the earlier stages of its administration; the strain of ether nausea and vomiting is especially dangerous in these critical cases which we are considering; the dose of ether required to dissolve the lipoid in the brain sufficiently to cause anesthesia dissolves also the lipoids in the liver, the kidneys, the red blood-corpuscles and other important structures. Ether also chemically hinders or prohibits phagocytosis; hence it may produce nephritis and pneumonia, and, of vital importance in hypotension cases, anemia. Ether immediately impairs the immunity of the patient so that infections find a ready recipient.

I have therefore made nitrous oxid the anesthetic of choice, because it is devoid of harmful after-results, and serves as a measurable protection against shock, since by its hindrance to oxidation it diminishes brain-cell changes —a fact which I have established experimentally. It is an expensive anesthetic and should be given only by a specially trained and skilful anesthetist, objections which can have no weight as compared with the resultant advantages to the patient derived from its use.

The complete technic in abdominal operations is as follows: When the preoperative strain is great, an hour or so before the operation the patient is given a hypodermic injection of 1/6 grain of morphin and 1/150 grain of scopolamin, that he may receive the solace and quiet which come from the use of these drugs. In exceptional cases the inhalation anesthetic may be administered in the patient's room; or else, in the apathetic state produced by the morphin and scopolamin, the patient is conveyed gently to the operating-room, where a specially trained anesthetist administers nitrous oxid. When the patient is anesthetized the division of tissue is preceded by nerve blocking by means of the local administration of 1:400 solution of novocain. Each division of tissue in the course of the operation is preceded by the infiltration of this local anesthetic, the block being made so complete that no nerve is left free to carry a single activating impulse to the brain. First the skin, therefore, then the subcutaneous tissue, then the fascia, and finally the remaining muscle or posterior sheath and the peritoneum are in turn novocainized, subjected to momentary pressure to spread the anesthetic, and then divided within the blocked zone. If the blocking has been complete, then on opening the abdomen there will be found no increased intra-abdominal pressure, no tendency to expulsion of the intestines, and no muscular rigidity.

The peritoneum is next everted and a 0.5 per cent. solution of quinin and urea hydrochlorid is infiltrated about the line of proposed sutures, and, as before, the parts are then subjected to momentary pressure. This infiltration serves as a block, and as its effects last for several days it should prevent or at least minimize the postoperative wound pain and the postoperative gas pain, and by so much minimize postoperative shock. The quinin and urea salt causes a certain amount of edema of tissue, which lasts for some time after the wound is healed. The relaxed abdominal wall will permit exploration of the entire abdominal cavity with ease. If there is no cancer or acute infection in the field of operation, then the following regions may be blocked as completely as, and in the same manner as, the abdominal wall, namely, the meso-appendix, the base of the gall-bladder, the uterus, the mesentery and any portion of the peritoneum. In performing a hysterectomy the broad and round ligaments are thoroughly infiltrated with novocain before they are severed, and again before the wound is closed the stumps may be completely infiltrated with quinin and urea hydrochlorid, thus giving a degree of anesthesia for at least two days. On account of the absence of nociceptors, operations on the stomach and intestines made without pulling on their attachment cause no pain, and hence the novocain infiltration of these viscera is not required. If the brain has received no stimuli during the operation, then the closure of the upper abdomen is as easy as the closure of the lower; all is done with the ease of relaxation.

What is the result? No matter how extensive the operation, no matter how weak the patient, no matter what part is involved, if *anoci* technic is perfectly carried out the pulse-rate at the end of the operation is the same as at the beginning. The postoperative rise of temperature, the acceleration of the pulse, the pain, the nausea and the distention are minimized or wholly prevented.

RESULTS

I have described the complete anoci operation. What is its effect on the postoperative conditions—the morbidity and the mortality? Let us take each morbid manifestation in turn.

1. *Postoperative Pain.*—Quinin and urea hydrochlorid wholly prevents pain if it is injected into the entire wound. But quinin and urea cause some edema of the wound; hence one should limit the wound infiltration to cases needing it, that is, bad risks generally.

2. *Postoperative Gas Pain.*—This baffling phenomenon may be largely or wholly prevented by the technic described, that is, by the hypodermic infiltration with quinin and urea hydrochlorid of a wide margin of tissue, including every part of the divided peritoneum. The stitches must be inserted within the blocked zone. Postoperative gas pain can be explained as a biologic adaptation to overcome infection. In the course of evolution all abdominal penetrations are infected, but the peritoneum is able to overcome most infections if they can be localized. To localize an infection the intestine and the abdominal wall must be kept fixed against each other; that they may do so each must be inhibited; the intestine must be distended with gas, the abdominal wall must be rigid. If the intestine be distended with gas and fixed, then digestion must cease. If digestion be arrested then there is anorexia, or even vomiting to expel food from the stomach. This shows us how postoperative gas pain is due to a biologic adaptation to overcome infection, and

explains its resemblance to incipient peritonitis. Nature does not depend on the surgeon or perhaps she knows the surgeon too well. The test of this hypothesis is easily made. If the brain, through which this adaptive response is made, is kept in ignorance of the incision into the peritoneum (*a*) by progressive novocain blocking throughout the operation and (*b*) by postoperative quinin and urea blocking to prevent later communication with the brain through stitch tension, then there should be no gas pain. Clinical experience has abundantly confirmed this hypothesis. It must be remembered that if a single nerve filament escapes the block there will be gas pain.

3. *Painful Scar.*—I postulate that the lesion of a painful scar is in the brain, not in the scar; that it is due to the low threshold produced by injury, and is intimately connected with a fundamental principle of nerve conduction. This fundamental principle relates to the fact that a strong traumatic or psychic stimulus produces some change in the conductivity along its cerebral arc, the effect of which is that of lowering the threshold of that arc. This might be illustrated by the phenomena following a hold-up at the point of pistol at a street corner. For a long time after such a psychic stress any association with that particular corner would recapitulate the experience. In this manner throughout life the various experiences may lower the threshold in innumerable ways. I assume that there is a similar result after a traumatic stimulus. The arc receiving the stimulus suffers a lowered threshold and hence from that time on mere trifles become adequate stimuli. Such a result is seen in the sensitiveness after fractures and in the painful stumps of crushed limbs. Now, if an operation is so performed that no strong stimulus reaches the brain either during or after the operation, then the thresholds of the cerebral arc from the wound will not be lowered. Since the threshold is not lowered, contact with the scar or any injury to that part will have no more effect than will contact with any other part of the body. In other words, the scar will be no more sensitive than is the skin elsewhere. Hence we see how painful scar may be prevented by complete anoci. Clinical data seem to support this hypothesis, although it has not as yet been fully worked out.

4. *Nervousness.*—When in the night one is threatened with an unknown danger, the brain threshold is always lowered, apparently as an adaptation to the more swift and accurate detection of the danger. Likewise, when one has received a crushing physical injury there is a universal lowering of the threshold. During these states of tenseness minor stimuli have major effects, or, in other words, one is "nervous."

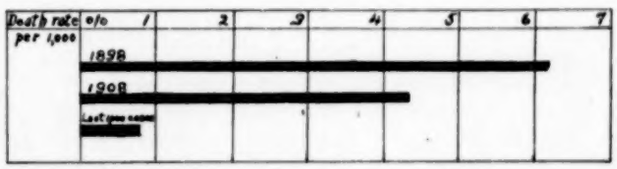
Now, as we have seen, the subconscious brain is tortured directly during unblocked operations under inhalation anesthesia. The resultant general effect on the brain thresholds is demonstrably the same as if the injury had been inflicted without anesthesia, that is, after the punishment of the subconscious mind during an operation the patient emerges "nervous" and "exhausted"; and since a low threshold is lavish in its waste of nervous energy, recuperation is slow. Hence there results a period of postoperative nervousness, of postoperative loss of efficiency. It is obvious, and clinical experience abundantly proves this, that the threshold is preserved by complete anoci; hence the unpleasant, damaging postoperative phenomena are avoided.

5. *Aseptic Wound Fever.*—Since it is a physical law that any form of force may be converted into heat, and that heat thus produced, if not at once transformed into motion, must increase the temperature of the body affected, we see readily why any stimulus, mechanical or physical, which normally would increase motor activity, must cause a rise in temperature if complete motor expression is impossible. Anything, therefore, that drives the motor mechanism of the body beyond the point of normal expression will cause fever. Anger, athletic contests, fear, physical injuries, all produce a rapid oxidation of certain body compounds too great for complete translation into motion.

In operations under general anesthesia only, we expected routinely to see some postoperative rise of temperature as a result of the suppressed power of motor response to the physical and psychic injury; but by the use of anoci-association, both during and after the operation, I discovered no change in the postoperative temperature and pulse-rate. I therefore was forced to the conclusion that, barring infection and the absorption of hemoglobin, postoperative fever is the result of increased oxidation, this being in turn the result of the psychic and traumatic stimuli of the operation to which the natural response had been denied.

So much for the postoperative morbidity. Not only does the surgeon, but also the patient, the intern and the nurse corroborate the story.

As for the mortality-rate, hospital statistics abundantly verify our conclusion. At the Lakeside Hospital since the introduction of this method, my associate, Dr. W. E. Lower, and myself have performed 250 pelvic operations, with but two deaths, a mortality-rate of 0.8 per cent.



Comparative mortality rate of the Lakeside Hospital Service. The first line shows the mortality rate when the hospital was first opened in 1898. The second line shows the mortality rate for the year before the anoci technic was introduced. The last line shows the mortality of the last 1,000 patients operated on at the Lakeside Hospital by the resident staff, Dr. Lower and myself.

Although my purpose in this paper is to deal only with pelvic operations, a word may be added regarding the application of this principle in a general surgical practice. Last year Dr. Lower and I performed 729 abdominal sections of every grade with a mortality-rate of 1.7 per cent., and in the Lakeside Hospital service, where all kinds of acute emergencies are met, and where most of my own private work is done, there were performed by my associates and me in the past year operations on 2,672 patients with a mortality-rate of 1.9 per cent.—a result never before approached in that hospital. In the last thousand operations performed by Dr. Lower and myself, these operations including every risk in a general surgical practice, the mortality-rate has been 0.8 per cent.

Osborn Building.

ABSTRACT OF DISCUSSION

DR. HENRY O. MARCY, Boston: The matter presented shows clearly that the dynamic energy of the individual is the thing to be preserved. While a student in London, in 1870, Sir James Paget said to me, "Dr. Marcy, do you know how to give ether?" They had had twelve deaths in the city from chloroform in the previous six weeks, and I had the opportunity of administering ether, the first time, he said, that it was ever given in London. I gave it after the old-fashioned method which we were taught in the Massachusetts General

Hospital and submerged my patient, but, fortunately, not to her death. Fifty years ago we gave chloroform in the U. S. Army, but it was given carefully and there were comparatively few accidents. When we give alcohol — and ever remember that ether is an acute alcoholic poison — we must know that we are lessening the dynamic energy of life, that we are lessening the circulatory power, and, consequently, lowering the resistance of the patient. Thus, it behooves us, in whatsoever way we give an anesthetic, to remember, first, the emotional conditions of the patient himself, and then study carefully the conditions before we operate as well as during the operation.

DR. C. O. THIENHAUS, Milwaukee, Wis.: I should like to ask Dr. Crile whether or not he would think it advisable to use the injections for the purpose of producing local anesthesia in cases of extra-uterine pregnancy with acute hemorrhage? I believe that for such cases the operation in the so-called "exciting stage of ether anesthesia" is the best method because it saves time. I feel furthermore that the fact is much overlooked that it is entirely wrong to transport these patients to a hospital. They must be operated on at home as rapidly as possible. Some of these patients who are almost pulseless hardly need any anesthetic at all and still, by prompt interference, quite a few of them have been saved, as can be shown by statistics.

Another fact ought not to be forgotten, and that is that the severest cases of general peritonitis following perforations, as well as the severest cases of internal hemorrhage never reach a hospital and, therefore, are not included in the statistics of hospital surgeons.

DR. ARTHUR E. HERTZLER, Kansas City, Mo.: There are two points which I should like to bring out: (1) the short duration of novocain anesthesia—not over fifteen minutes, too short to be of much use as a block; (2) the question of hyperesthesia in the regions anesthetized. In the use of a local anesthetic we obtain an exquisite hyperesthesia which may last for days. If this region is made the object of any irritation by suture or otherwise, it is a constant source of irritation and defeats the purpose. I have been working on this problem ever since my assistant called attention to the value of local anesthesia for the lessening of the pain, and we still have little to offer. In the transversalis and the parietal peritoneum, in which the chief difficulty lies, the nerve-supply is exceedingly complex. The nerves come in external to the fascia of the transversalis and ramify external to the parietal peritoneum. How any one is going to block any particular area and keep from striking a set of nerves around the hyperesthetic area we have been unable to determine. What we have demonstrated is that much can be gained by avoiding the nerve areas in all kinds of traumatism, whether it be by suture, forceps or some other means. It is useless to infiltrate tissues that contain no nerves. I should also like to make a point, particularly for personal information, regarding Dr. Crile's statement that quinin produces edema. We have made a careful histochemical study of the effects of quinin on the tissues, and we have not observed that there is any edema produced. We do get an exudate of a granular fibrin in many instances, particularly if the use is excessive, but have never observed that either cellular or edematous infiltration takes place.

DR. GEORGE GELLHORN, St. Louis: It seems to me timely to point out that spinal anesthesia preeminently belongs among the newer methods of reducing the mortality of pelvic operations. It is this method above all others that fulfils all the postulates of anoci-association. The brain of the patient does not know anything of the operation and consequently there is no shock. I can also confirm Dr. Crile's statement, that, because of the blocking of nerve impulses, gas pain is considerably less after spinal than after ether narcosis. It is not altogether absent, but reduced to a marked extent. I hope that Dr. Crile will define his views on spinal anesthesia in his closing remarks.

DR. GEORGE W. CRILE, Cleveland: Replying to Dr. Thienhaus' question: Of course, if one encounters an emergency of any kind, the method is not satisfactory outside of the hospital. That question must be settled on its own merits. One would not feel like abondoning a great surgical principle simply because it could not be applied to patients outside the hospital. I am speaking of patients on which this technic can be carried out. Of course, it is quite important to arrest the hemorrhage early. I am sure we all agree to the remark Dr. Thienhaus made.

All that I can say with regard to Dr. Hertzler's points is that it is a clinical fact that by local infiltration one can anesthetize the abdominal wall or any other tissue, if the work is done carefully and well. If one makes a complete infiltration and applies local pressure immediately, a local anesthesia can always be secured. I do not mind particularly what the ultimate facts are regarding the tissues so long as the end is accomplished. I am glad to have Dr. Hertzler assure us that there is no edema; but, I notice this: Quinin and urea hydrochlorid do produce a certain amount of swelling in the wound afterward, more than any other agent I know of. Novocain does not produce any swelling at all. I wish Dr. Hertzler would tell us how we can avoid the swelling which follows the injections, because these injections give something to our operations which we have never before secured. I am ready to be convinced that spinal anesthesia is a safer form of anesthesia than can be secured by our methods. It is because I have not been sure that spinal anesthesia is the safest that I have gone to the trouble of working out the nerve-blocking system. Considering our remarkably low mortality-rate and our marked control over our patients, I should not be willing to give up this method until I was sure that the substitute would be quite as safe.

CAN RABBITS BE INFECTED WITH SYPHILIS DIRECTLY FROM THE BLOODS OF GENERAL PARETICS?

OBSERVATIONS ON THE RECOGNITION OF THE VIRUS IN THE LATER PERIODS OF THE DISEASE *

WILLIAM W. GRAVES, M.D.
ST. LOUIS

Accepting as postulates that syphilis is a chronic infectious disease and that we have no means of definitely knowing its termination during the life of the infected individual, I proposed in a recent communication[1] the theory of relative tolerance as opposed to that of latency. It seemed to me that a period or periods of relative tolerance for the virus, meaning thereby an excellent, a fair, or a poor resistance of the whole or a part of the organism was a better conception, one more in accord with clinical experience, the natural history of the disease and the results of treatment than that of latency.

Certainly, the modern laboratory aids and clinical refinements now utilized in recognition of the syphilitic justify the assumption of many older and modern investigators that somewhere in the tissues of living individuals the *contagium vivum* exists and justify the hope that means may be found by which it may be readily demonstrated in every period of the disease. Nothing short of the actual demonstration of the virus in the various periods of syphilis can satisfy the exacting demands of clinical medicine or lead to the fullest recognition of the protean manifestations of this scourge

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* From the Department of Nervous and Mental Diseases in the Alexian Brothers' Hospital and the St. Louis University School of Medicine.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Graves, William W.: Med. Rec., New York, Aug. 24, 1912.

of the human race. Since the epoch-making discovery of Schaudinn the demand for means of recognition of the virus either in the blood or other tissues or body-fluids in every period of the disease has become more and more insistent, especially so since it was soon found that the blood and lymph-nodes yielded inconstant findings and then only in the early periods of the disease.

Uhlenhuth and Mulzer[2] seem to have been the first to succeed in growing spirochetes in the testicles of rabbits from the blood and blood-serum of syphilitics during the primary and secondary periods of the disease and in one case[3] from the blood of a syphilitic mother four years after infection who had recently given birth to a syphilitic infant. Aumann[4] confirmed their results by using blood and blood-serum from the secondary periods of the disease. Nichols and Hough[5] have succeeded recently in growing spirochetes in the testicles of a rabbit from the spinal fluid in a case of relapsing cerebrospinal lues nine months after infection.

Each of these authors emphasized his failure to find spirochetes with the dark field in the material used for inoculations. No one, so far as I know, has as yet recorded successful inoculations of rabbits' testicles or otherwise cultivated the *Spirochaeta pallida* from the blood or spinal fluid of so-called latent syphilitics, paretics and tabetics. Yet work in this direction seems most promising since Noguchi and Moore[6] have recently demonstrated typical spirochetes in a number of brains of paretics. It is the purpose of this communication to give a brief account of an attempt to cultivate and otherwise recognize the virus of syphilis mainly in periods remote from the time of infection and particularly in paretics and tabetics.

My work in this direction began a little more than three years ago with the blood and spinal fluid and now embraces approximately five hundred cases, the majority of which were found in my service at the Alexian Brothers' Hospital. These cases were studied clinically from every angle and Nonne's four reactions were used in practically all of them in arriving at diagnoses. Most of the bloods were collected from forearm veins under sterile precautions while a few were collected in ampules from ear lobules. The spinal fluids were invariably collected in a sterile manner. Bloods and spinal fluids were contrifugalized soon after withdrawal. Blood-serum from corpuscle and serum junction in test tubes or ampules and the centrifugate of spinal fluids were studied in smears stained in various ways, in native preparations, and with so-called vital stains; with India ink and with adequate dark field illumination. In only one case, that of lues spinalis, ten years after infection, were spirochetes found in the spinal fluid with the aid of the dark field or otherwise and in only two cases in the blood and in these during the eruptive stage of the disease.

My observations on the bloods and spinal fluids of syphilitics are wholly in accord with those of many others in showing that the spirochetes can rarely be demonstrated in the blood and spinal fluid. It would seem that until we can acquire more exact knowledge of the morphology of the *Spirochaeta pallida* and are, perhaps, thereby able definitely to recognize the granule forms mentioned by Noguchi,[7] or as it may be an encysted form analogous to that described by Perrin[8] in connection with the *Spirochaeta balbianii*, or the spore stage assumed to exist by many authors, attempts to demonstrate "specific" spirochetes in the blood and spinal fluid with any degree of constancy seem to be hopeless undertakings.

The almost universal negative results in demonstrating spirochetes in blood and spinal fluid derived from syphilitics caused me early in my studies to accept the idea held by many of a cycle of development in which a spore-like stage existed. As early as October, 1910, I found quite constantly in the spinal fluids of syphilitics and seemingly paralleling in number the intensity of the disease processes, non-motile round bodies and actively motile granules. The granules vary in size from ¼ to 1 micron. The smaller granules resemble the smaller so-called hemaconia, have a low refractive index to the dark field, are not centrifugalizable at moderate speeds and are not stained by ordinary dyes. The larger granules have a relatively high refractive index to the dark field, are centrifugalizable at moderate speeds and are readily stained by basic dyes.

I was at the time and still am unable to find those granules mentioned in the literature as occurring in spinal fluid. They are readily differentiated from fragments of cells found in normal and pathologic spinal fluid. I mention them here merely to caution others against interpreting them as "spores" of the *Spirochaeta pallida*. Continued studies soon showed that similar-appearing granules were found in the blood, in ascitic fluid, in transudates generally, in the bodily secretions such as saliva, tears, bile and urine, not only in syphilitics, but in non-syphilitics and likewise in the blood, spinal and other body fluids and secretions of dogs, rabbits and monkeys.

It finally occurred to me that if the syphilitic virus does remain viable in blood and spinal fluid despite the resistances of the body, then some impetus to its development might be secured by culturing *in vitro* the bloods and spinal fluids of syphilitics. Studies of approximately two hundred bloods and spinal fluids cultured in hermetically sealed ampules failed to yield the *Spirochaeta pallida* in a single instance, though the blood from ear-lobules constantly yielded other micro-organisms, the most frequent being the *Staphylococcus albus*. Moreover, the contaminated bloods as well as those remaining sterile disclosed many forms described by von Niessen[9] as stages in the development of his "syphilis bacillus"; the *"Cytorrhyctes luis"* of Siegel;[10] bodies recently described by W. Ford Robertson[11] as stages in development of his so-called *Bacillus paralyticans* and bodies recently described by McDonagh[12] as forms in the life-cycle of the virus of syphilis. My studies of sterile and contaminated bloods from syphilitics, from non-syphilitics and also from dogs, rabbits, cats and monkeys compel me to say that normal products in the blood, or artefacts, or contamination, one or more or all combined, will account for most of the findings in the blood assumed by the authors just mentioned to be either the virus of syphilis or stages in its morphology.

Perhaps the most confusing forms found by me in the bloods of syphilitics and later in non-syphilitics and animals were those which were similar to those

2. Uhlenhuth and Mulzer: Berl. klin. Wchnschr., No. 4, 1912.
3. Uhlenhuth and Mulzer: Centralbl. f. Bakteriol., lxiv, 165.
4. Aumann: Med. Klin., 1912, xv, 1710.
5. Nichols and Hough: Demonstration of *Spirochaeta pallida* in the Cerebrospinal Fluid, THE JOURNAL A. M. A., Jan. 11, 1913, p. 108.
6. Noguchi and Moore: Jour. Exper. Med., No. 2, 1913, xvii.
7. Noguchi, Hideyo: THE JOURNAL A. M. A., July 12, 1913, p. 1236.
8. Perrin: Arch. f. Protistenkunde, 1906.
9. Von Niessen: Der Syphilis Bacillus, Wiesbaden, 1908.
10. Siegel, J.: Centralbl. f. Bakteriol., 1910, lvii, No. 1, p. 68.
11. Robertson, W. Ford: Lancet, London, Sept. 12, 1912.
12. McDonagh, J. E. R.: Life Cycle of the Organism of Syphilis, Lancet, London, Oct. 12, 1912, p. 1011.

described by Krystalowicz and Siedliecki[13] in 1908 as contracted, ring and condensation forms of spirochetes. Indeed, their Forms 12 and 20, and 25 to 47, inclusive, here reproduced in Figure 1, may be readily shown in mammalian blood generally. It can be shown with alkalinized stains, the dark field, with moist India-ink preparations, fresh mounts and vital stains in one way or other that the forms just referred to, as well as several others which I have encountered and at one time considered as phases in the morphology of spirochetes, are either artefacts or normal constituents and these, together with the non-motile round bodies and the granules already mentioned, will be made the subject of an early communication.

With the announcement of Noguchi[14] in August, 1911, of a method of pure cultivation of *Spirochaeta pallida*, two additional avenues of research bearing on the problem in hand were made possible; first, the morphology of the virus might now be studied in pure cultures free from other biologic products than those in the medium and free from artefacts; second, the medium might prove suitable for the cultivation of the virus directly from blood and spinal fluid of syphilitics.

I have made use of both means and in the beginning largely through the kindness of Dr. Noguchi. In August, 1912, he gave me his C 2 and McD. *pallida* strains and during August and September, 1912, provided me with an abundance of ascitic fluid agar tissue medium, during which months, through the courtesy of Dr. Ewing, I enjoyed the privileges of the pathologic laboratory in the Cornell Medical School. It is a pleasure at this place to gratefully acknowledge my indebtedness to Dr. Hideyo Noguchi for his generosity in supplying me with pure cultures and perfect mediums and to Dr. Ewing for the facilities of a splendidly equipped laboratory.

Both the Noguchi strains have been repeatedly transplanted and studied and no change has been noted in their morphology. The morphology of these strains, as well as of two impure strains which I have succeeded in cultivating in Noguchi mediums, seems to be constant and relatively simple. I have been able to make out with the aid of stains and the dark field but two definite stages in development; namely, the spirochete itself with curves varying from one to thirty or more and spore-like round bodies which were described by Noguchi[14] in his first paper on the pallidum. In referring to his Figures 46, 47 and 48, Noguchi speaks of these spore-like bodies as follows:

> Sometimes several round bodies are seen in a group and these are entangled in a mass of short irregular forms of *pallida*. It is not rare to find a round body connected with one or two young *pallida* as though the latter were just sprouting from the former. The *pallida* with these round bodies are motile. The size of this spore-like round body is variable. They are difficult to stain but when stained they take chromatin stain.

My observations are in accord with those of Noguchi concerning the form of these spore-like round bodies, their variable size, the sprouts which seem to come from them and their resistance to stains. Only in the best Giemsa preparations may they be seen at all. They are best stained by Stern's silver method. Drawings from a preparation derived from a thirty-eight day old subculture of Noguchi's McD. strain and stained by this method are reproduced in Figure 2. Well-stained Levaditi preparations show them constantly and some in great numbers.

Each of these bodies, as a rule, is spherical, having a uniform rim-like stainable periphery, while its interior seems void and unstainable. The bodies vary in size from ½ to 2 microns. In some cultures they seem to be more numerous than the spirochetes. In others, the converse is true. They are more often connected with spirochetes having few curves. When not sprouting these spore-like bodies are motionless, a point in analogy with spores in general; but in those specimens having one or more sprouts, motility may be made out and this seems to increase with the number of curves. One or more of these bodies are often in juxtaposition, but I have never seen a line of fission.

Noguchi[7] has noted in old cultures the breaking up of spirochetes into granules and I have noted the same in his and in my own cultures. May it not be that these granules subsequently develop into spore-like round bodies? If this be true, then the cycle in development would be: granule—spore-like body; spirochete—granule. Until we learn more about Noguchi's granular forms and the spore-like round bodies and by special stains or other means are enabled definitely to recognize and differentiate them from all other forms, the microscopic recognition of the virus in these and it may be in other forms remains a hopeful problem of the future.

While my attempts to recognize the virus in fresh and cultivated blood from syphilitics in the later periods of the disease have remained negative, I have seemingly been more fortunate in my experiments with Noguchi mediums and with rabbits. With the aid of ascitic fluid agar tissue mediums (Noguchi) I have succeeded in cultivating spirochetes from the blood of two chronic syphilitics, and from the blood of two paretics I have gotten a growth in rabbits.

Experiments with Noguchi mediums were begun in February, 1912, resumed in August, and have been continued up to the present time. The total number of cases from which either blood or spinal fluid or both have been cultured in the ascitic fluid agar tissue medium is 130. Of this number, 40 were paretics; 20, tabetics; 12, lues cerebri; 8, lues cerebrospinalis; 12, lues spinalis; 20, so-called latent syphilitics; 3, primary; 8, secondary; 4, tertiary; and 3, congenital syphilitics. The quantity of blood or spinal fluid from each case added to the mediums and incubated at 37 C. (98.6 F.) varied from 0.5 to 2 c.c., and these quantities were passed well down to the tissue with a fine pipet. In a few cases diffuse cultures were made by the addition of syphilitics' blood or spinal fluid in quantities equal to the percentage of ascitic fluid used in Noguchi mediums, and in these cultures no ascitic fluid was employed, the idea underlying this procedure being that greater quantities of the assumed virus might thus be cultured.

A few of the number of bloods and spinal fluids were immediately inoculated into Noguchi mediums, while most of them were incubated from three to ninety days either in hermetically sealed ampules or in test-tubes, and when in the latter, paraffin oil was added to prevent evaporation. It seemed likely that some impetus to development of the assumed virus might be secured by thus incubating the bloods and spinal fluids before adding them to Noguchi mediums. Be this as it may, it is, nevertheless, true that the first culture secured with Noguchi mediums was derived from blood thus incubated. The blood was collected in three ampules

13. Krystalowicz et Siedliecki: Bull. internat. de l'Acad. d. Sc. de Cracovie, 1908, p. 173.
14. Noguchi, H.: Jour. Exper. Med., xiv, No. 2.

(approximately 1 c.c. in each) Nov. 28, 1911, from a normal appearing ear-lobule of a male syphilitic thirty years after "specific" infection. The patient had been admitted to my service at the Alexian Brothers' Hospital, Nov. 26, 1911, complaining of weakness in legs and sphincter weakness. He was greatly emaciated and cachectic, showed definite physical signs of lues spinalis and Nonne's four reactions were present. He died three days after admission, within twelve hours following an intravenous injection of salvarsan. Necropsy was not permitted. The sealed ampules were incubated at 37 C. (98.6 F.) until Feb. 9, 1912, and on this date the contents of one ampule was inoculated into a Noguchi medium tube supplied by Dr. Gradwohl, labeled 2 B, and the other ampules were thereafter kept at room temperature.

On Aug. 24, 1912, the contents of a second ampule was inoculated into mediums supplied by Dr. Noguchi and labeled 2 B X, and that of a third ampule was inoculated Nov. 8, 1912, into Noguchi mediums which had been prepared under my supervision, this tube being labeled 2 B X 1. Each of these cultures showed contamination mainly by *Bacillus subtilis*, and each of them many spirochetes, all having the identical morphology, yet differing from the typical morphology of Noguchi's *pallida* strains. The differences thus far noted

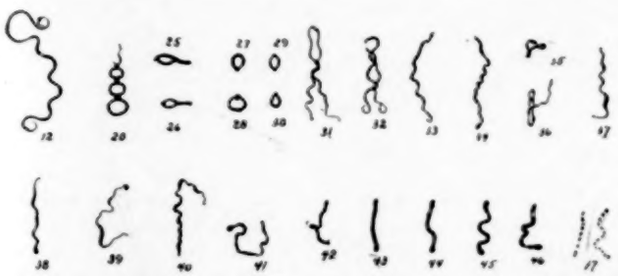


Fig. 1.—Confusing forms found in blood of syphilitics, non-syphilitics and animals; forms that may be shown in mammalian blood generally.

are (*a*) decided rigidity; (*b*) feeble movement; (*c*) marked regularity in the curves and being slightly wider in the middle; (*d*) extreme resistance to strains.

Cultures 2 B, 2 B X and 2 B X 1 have been repeatedly subcultured without change in morphology and despite every effort at purification the *Bacillus subtilis* remains. The spirochetes in these cultures seem, like Noguchi's *pallida*, to originate from spore-like round bodies, and they have even a greater resistance to stains. The peculiar morphology may be accounted for, possibly, by differences in *pallida* species, or by altered cultural conditions incident to the presence of the bacillus subtilis, or by considering them of a species not hitherto described, or by considering them involuted forms analogous to those noted by Noguchi[15] while cultivating his *macrodentium* strains. Until purification can be accomplished or strains having similar morphology can be secured direct from syphilitic blood drawn under sterile precautions, identification cannot be definitely determined.

The points of special interest in connection with strains 2 B, 2 B X and 2 B X 1 are that the virus was derived from the blood of a syphilitic thirty years after infection and that it remained viable in sealed ampules for 71, 266 and 310 days, respectively, after drawing the blood and before adding it to Noguchi mediums.

15. Noguchi, H.: Jour. Exper. Med., xv, No. 1, 1912.

The blood from which the second growth in Noguchi mediums was secured was drawn June 12, 1911, in an ampule from the ear-lobule of a syphilitic twenty-three years after infection. The patient had optic atrophy and diplegia following an attack of lues cerebrospinalis eight years before coming under observation. The blood of this patient was kept at room temperature and inoculated into Noguchi mediums Aug. 29, 1912, one year, two months and twenty-eight days after sealing it in an ampule. This culture was not examined until March 4, 1913, and a few typical spirochetes were found. Several subcultures were immediately made, but thus far no growth has occurred in any of them and the original culture no longer shows spirochetes. In this culture the growth was evidently feeble, but that growth should have occurred at all seems noteworthy, particularly when it is remembered that the blood from which it was derived was kept in a sealed ampule at room temperature for more than a year.

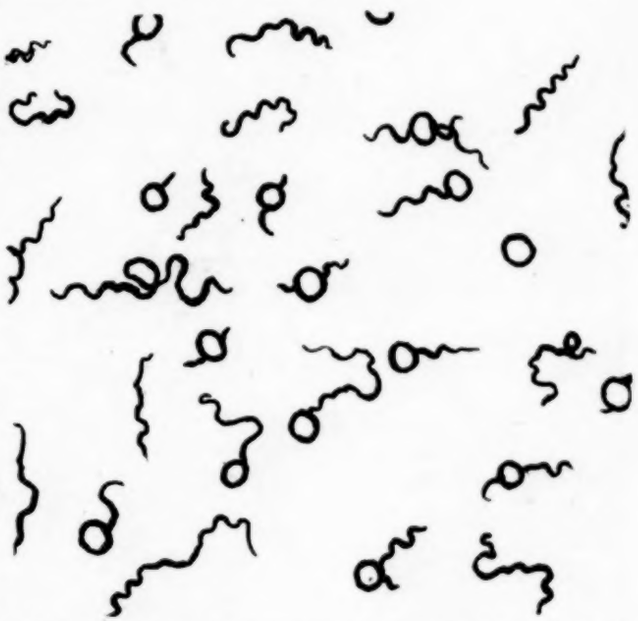


Fig. 2.—Drawings from a silver preparation of Dr. Noguchi's McD. strain illustrating spore-like round bodies and their relations with spirochetes.

Assuming the strain from the case just cited and strains 2 B, 2 B X and 2 B X 1 to be *pallida*, it would seem that the cultivation of the syphilitic virus directly from the blood of chronic syphilitics with the aid of Noguchi mediums is among the possibilities of the laboratory. Even though the blood from only two cases out of one hundred and thirty yielded positive results, they are, nevertheless, encouraging and should stimulate us to learn, if possible, the conditions most favorable for the successful cultivation of the virus *in vitro* when derived directly from the blood or spinal fluid of syphilitics.

Thus far blood from four classical cases of general paresis and from one case of taboparesis has been injected in quantities of 2 c.c. in each testicle of healthy full-grown rabbits. Only one rabbit has been used in each case. The rabbits were free from skin lesions and studies with the dark field showed no spirochetes in the buccal cavities, about the genitals or anus. The bloods were collected in a sterile manner from forearm veins and no visible lesions of the skin were noted in any case. The bloods were neither defibrinated nor was citrate or oxalate of sodium employed to prevent clot-

ting. In four of the five cases bloods were incubated from two to seven days at 37 C.; whereas in one case it was injected two hours after drawing it. Before injecting the blood it was mortared and the clot thus partly broken yielded a rich red serum. In injecting the blood the needle was caused to penetrate the long axis of the testicle, the point of the needle passing twice through the tunics, and as the needle was withdrawn the blood was distributed first between the tunics and, secondly, along the course of the needle. I shall give abstracts of histories and rabbit protocols only in the two cases yielding positive results.

REPORTS OF CASES

CASE 1.—Man, married, aged 37, had sustained a luetic infection eighteen years ago, receiving thereafter two years' continuous treatment. He became a prominent business man and is said to have been in good health until four years ago, when shooting pains developed in the legs, though transient diplopia occurred on several occasions during the last eight years. For the past two years slight unsteadiness in the dark had been noted. Slight change in disposition was noted in the summer of 1911 and in October of the same year a rapid onset of mental symptoms pointing to general paresis developed. He was seen at that time by Drs. Fry, Hoge, Bliss, Herman, Campbell and myself. His mental state was one of disorientation, confusion and expansion.

The physical examination disclosed associated tremor of facial muscles, syllable stumbling, entire absence of lower and upper extremity, tendon and periosteal reflexes, Gordon toe reflex on right, absent abdominals and marked analgesia, especially over legs, slight Rombergism, slight ataxia of lower extremities, well-reacting pupils and normal eyegrounds. The clinical diagnosis at the time was taboparesis. The laboratory findings secured within two weeks after onset were Wassermann reaction in blood-serum and spinal fluid positive, 120 lymphocytes per cubic millimeter and increased globulin content in spinal fluid.

Three months after onset a definite remission occurred lasting several months, during which time the patient seemed quite normal mentally. In July, 1912, right-sided epileptiform convulsions occurred, followed by temporary aphasia and weakness. Following this numerous similar attacks with increased deterioration marked the progress of the disease, death occurring in a convulsive seizure in March, 1913. This patient was under active mercurialization from November, 1911, up to within a short time before his death and in July, 1912, he received 0.6 gm. of salvarsan intravenously.

Blood from this patient for Wassermann reaction and rabbit experiment was drawn Jan. 25, 1913. The Wassermann reaction at this time was negative. The blood was incubated at 37 C. (98.6 F.) until February 1 (seven days), when 2 c.c. were injected into each testicle of a full-grown black rabbit, No. 4.

CASE 2.—Man, aged 41, had an initial lesion fourteen years ago and thereafter two years' continuous treatment. He was admitted to Alexian Brothers' Hospital Feb. 3, 1913. Mental change first noted four months ago. On admission marked disorientation for time and place, no insight, expansive delusions, marked excitement, Argyll Robertson pupils, facial tremor, syllable stumbling, unequal and exaggerated tendon reflexes, a pathologic toe reflex on the right. Nonne's four reactions present.

On February 22 blood drawn from forearm vein and two hours later 2 c.c. of this were injected into each testicle of a healthy white rabbit, No. 15.

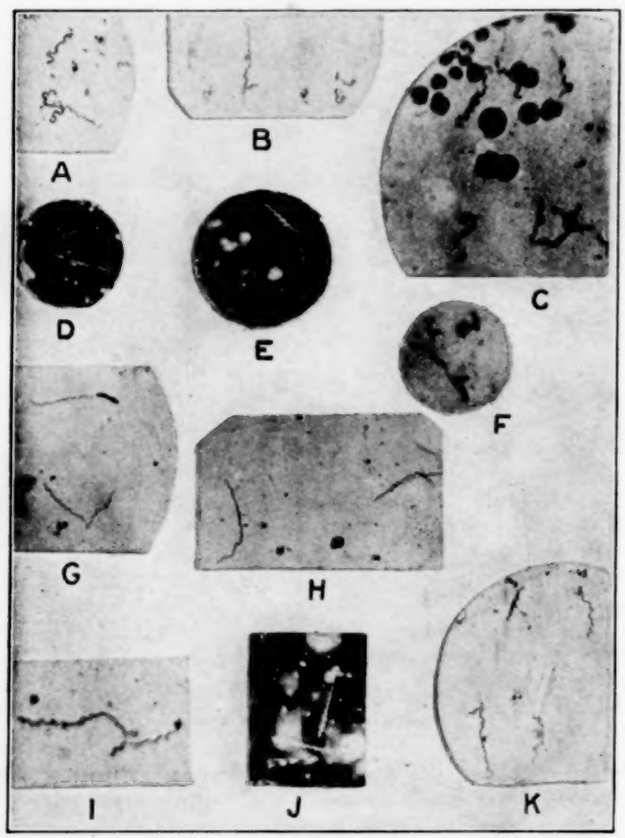


Fig. 3.—*Spirochaetae pallidae: a, b, c, f, g, h, i,* and *k* are from Giemsa preparations from tissue emulsions of lesions of Rabbits 4 and 15. Note the spore-like round bodies in *a, b* and *k*. The others (*d, e* and *j*) are spirochetes from strains 2 B, 2 B X and 2 B X 1 from dark field photomicrographs. Magnification in *i* is approximately 1,000; in other figures 800.

The positive results thus far secured with inoculations of blood from the two cases of general paresis into the testicles of Rabbits 4 and 15 may be thus summarized: After sixty-six days' incubation Rabbit 4 showed spirochetes in right testicle and in tissue emulsions from lesions about eyelids, perineum and anus, the skin lesions persisting approximately forty days. The skin lesions recurred about the anus and eyelids seven and twenty-three days, respectively, after their complete disappearance. Specific testicular lesions have been produced in two rabbits by inoculating tissue from lesions from Rabbit 4. After approximately forty-eight days' incubation Rabbit 15 showed spirochetes in lesion about the prepuce, persisting approximately forty-five days, and during the activity of this lesion the disease was transmitted to two female rabbits by mating, to the one with, to the other without scarification of vaginal orifice; to one rabbit by inoculation of scarified surface of upper lid and to one rabbit by injecting tissue emulsion from prepuce lesion into testicles. A lesion recurred about prepuce in Rabbit 15 seven days after all lesions had completely disappeared. Lesions also recurred in Rabbits F 15 A and F 15 B after their complete disappearance. Gummas were found in right testicle of Rabbit 15 after an incubation period of ninety days. The spirochetes from the lesions in each of the infected rabbits show to dark ground illumination, to Giemsa stain and to India ink a morphology identical with that of *Spirochaeta pallida*.

On June 1 tissue emulsion from anal lesion of Rabbit 4 and stained preparations from tissue emulsions from Rabbits 4, 15, F 15 A and F 15 C were sent to Dr. Hideyo Noguchi for study and criticism, and in a letter dated June 7 he states: "I found typical *pallida* both in the emulsion and in stained preparations."

CONCLUSIONS

On the evidence recorded in this paper it seems we are justified in affirming that rabbits can be infected with the virus of syphilis directly from the bloods of general paretics. Until confirmatory and additional work can be done, clinical observations and laboratory methods will continue to support the idea that in paretics, tabetics and so-called latent syphilitics the living virus of syphilis is ever present.

Metropolitan Building.

ABSTRACT OF DISCUSSION

DR. CHARLES R. BALL, St. Paul: Dr. Graves' paper presents positive and definite results which must be seriously reckoned with in any consideration of the nature and cause of general paresis.

DR. SANGER BROWN, Chicago: I suppose it is too early to draw any hard and fast conclusions, but it is certainly very gratifying to know that work tending toward definite demonstration is being done, and I think that it might lead us to hope that we will finally discover the causation of general paresis. There are, of course, many things to be cleared up. A great deal of work must be done by different investigators, and they must compare and check up their results and methods closely. For instance, it appears conclusively from Dr. Graves' paper that the specific virus, after remaining in the human subject for twenty-five or thirty years, can infect a rabbit with the positive lesions of syphilis; and yet it is pretty well established, no matter what laboratory experiments might seem to show, that usually after two or three years nothing remains in the human subject which can be transmitted to produce the acute diseases in the human female. These are questions that will have to be cleared up. The main and important element in this work is that it is apparently leading up to the causation of syphilis, and we hope that something may develop from it to enable us to cure or prevent the disease.

DR. WILLIAM W. GRAVES, St. Louis: I hope that I have not made the impression that I feel that my report to-day is in any sense final. The work must, of course, be confirmed by others and must be done on a much larger scale than I have been able thus far to carry out.

I think that the actual demonstration of the virus would convince some people of the real effects of syphilis, not only so far as it affects the individual himself, but also so far as it affects his wife and family. From my own observations I have long since come to the conclusion that the syphilitic, however thoroughly we have cured him, is still a menace to himself and to his family.

In answer to Dr. Brown I may cite this experience, which those who have had opportunity of curing syphilis as I did during the early years of my professional career may verify if they will. Out of twenty cases of syphilis which I had treated no less than two, three, four or five years, as we treated syphilis twenty-five years ago, eight of the wives of the syphilitics gave positive Wassermann reaction, and very few failed to show some physical signs that could be attributed to a syphilitic infection. Out of all of the children of these patients, about seventy, I did not find one that compared favorably with either parent. I therefore believe that the idea suggested by Dr. Brown, that the syphilitic is a harmless member of society after he is cured, is not tenable. If we will observe our patients over a number of years after infection, we shall find that they show ever-increasing signs, particularly in connection with the cardiovascular apparatus and the nervous system, which can be attributed only to a former syphilitic infection. We need to diagnose this condition through a laboratory method. In the diagnosis of the cases we have, of course, the Wassermann reaction, which is of the greatest help, and we need to recognize definitely the virus of syphilis in the various periods of the disease as readily as we now recognize the tubercle bacillus in tuberculosis. I believe that this will be the ultimate outcome of laboratory research.

CULTIVATION OF THE RABIES ORGANISM *

ANNA WESSELS WILLIAMS, M.D.
NEW YORK

From the earliest days of artificial cultivation many investigators have attempted to grow the specific organism of rabies, but few have had the courage to report positive results. Among the latter may be mentioned, for example, Bruschetti (1896), who reported that he had cultivated on special brain-broth mediums an extremely minute pleomorphic bacillus, which up to the sixth culture generation produced typical rabies in susceptible animals; and later Levy (1903), Sormani (1903) and a few others reported equally positive results with cultures of different micro-organisms isolated from rabies animals. No one so far has been able to corroborate these results.

Since Negri and others demonstrated that the structured cell inclusions known commonly as Negri bodies are specific for rabies, there have been practically no cultural studies reported; but from verbal reports and demonstrations we know that such studies have been going on in several research laboratories.

Among those most interested in the subject is the research laboratory of the New York City Department of Health, which has been more or less actively engaged in investigations concerning the etiology of rabies since 1897, when practical studies on the treatment of this disease were begun there.

As a culmination of a series of studies on the etiologic side of this question I published several reports[1] in 1904 and 1906 dealing chiefly with the nature of the Negri bodies, in which it was shown that the evidence presented was strongly in favor of a specific protozoal cycle of development in these bodies. I therefore, wisely or unwisely, gave them a generic and specific name, *Neurorrhyctes hydrophobiae*. The chief points, first brought out in these papers, which led to this conclusion may here be briefly recapitulated:

1. By a new method for the examination of rabies brains (the smear method) Negri bodies show distinct characteristics in both morphology and stain.

2. Their morphology is constantly cyclic, that is, a definite series of forms indicating growth and multiplication can be demonstrated: small, single, rounded or oval plastin-staining forms containing from one to several minute chromatin-staining granules; similar forms in twos or groups; larger forms containing a definite central or eccentric chromatin mass (nucleus); forms with smaller chromatin masses arranged in a ring about the central mass; evidence of division of these larger forms as well as of the smaller ones; segmentation of chromatin and distribution of nuclear-staining material throughout the whole organism; division of the organism into many minute bodies, and finally, from the beginning of the appearances of the smaller masses of chromatin, all stages of budding, a phenomenon which accounts for the appearance in the same cell and at the same time of both large and small forms, and also helps to account for the rapid spread of the organism and for forms small enough to pass certain filters.

3. In rabbit "fixed virus," besides the few larger forms seen by others, very many extremely minute forms are found, within most of which are seen in well-fixed and stained preparations a single chromatin granule.

4. With stains such as Giemsa's the lightly basophilic property of the "cytoplasm" of the bodies and the chromatin-like

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* From the Division of Laboratories, New York City Department of Health.

1. Williams, Anna Wessels: Discussion of Pathologic Studies in Rabies, Proc. New York Path. Soc., 1904, iv, 107; Negri Bodies with Special Reference to Diagnosis, ibid, 1906, v, 155; Studies in Hydrophobia, ibid., 1906, vi, 77. Williams, Anna Wessels, and Lowden, May Murray: The Etiology and Diagnosis of Hydrophobia, Jour. Infect. Dis., 1906, iii, 452.

nature of the contained masses and granules are brought out in smears better than in sections.

5. Negri bodies are found in all parts of the infectious central nervous system, beginning to appear in the large nerve cells as extremely minute forms before the beginning of symptoms; that is, on the fourth day in fixed virus infections and on the seventh day in rabbits inoculated with street virus; thus they were found early enough to account for the infectivity of the host tissue.

Most of these findings were confirmed by a few investigators immediately following their publication. Recently Watson[2] added his corroboration and states that he found in addition spore-like bodies similar to myxosporidian spores.

No one has yet brought forward clear evidence against these findings of a definite cycle of development.

Recently there appeared Dr. Noguchi's announcement on the cultivation of the parasite of rabies.[3] This announcement unfortunately leaves us with no more exact knowledge of the cultivation of the rabies organism than we had before.

Naturally, with the idea of the protozoal nature of the Negri bodies in mind, I have made attempts to grow them

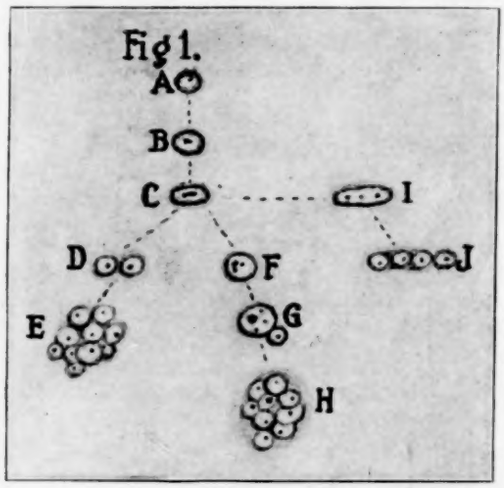


Fig. 1.—From rabbit "fixed-virus" brain; *a, b, c, d, f* and *i*, types of Negri bodies seen at death of rabbit; *e, g, h* and *j*, apparent multiplication and segmentation of the bodies after three days at 24 C. All drawings in this illustration and Figure 2 made from smears stained by Giemsa's method and magnified about 2,000 diameters.

in artificial culture mediums supposed to be suitable for pathogenic protozoa, but results so far have been either too unsatisfactory or too unfinished for publication. Others have tried newer culture methods also with negative results. Thus Poor and Steinhardt[4] state that they are unable to obtain evidence of growth by the living tissue method of culturation. A few suggestive ideas, however, have been obtained from some of the observations made during my studies, which, in order to discuss Noguchi's report, may be published now.

In the first place, it may be stated that no change of mind has been necessary concerning the varieties and arrangements of the Negri bodies as shown in my plates published in 1906. Such forms are still called "typical Negri bodies."

The observations may be divided into two groups: (I) changes in rabid brains after death of animal and (II) passage of virus from culture to culture.

I. CHANGES IN RABID BRAINS AFTER DEATH OF ANIMAL

When brains containing "typical Negri bodies" are kept, free from contamination, either at ice-box (12 C., 53.6 F.), room (24 C., 75.2 F.) or incubator (36 C., 96.8 F.) temperature certain changes occur, more slowly at the lower temperatures.

First, in rabbit "fixed virus" brains which on removal from an animal dying or dead from rabies usually show only the minute forms (Fig. 1, *a-d*), in about twenty-four hours at 36 C., forty-eight hours at 24 C. and three days at 12 C., some of the larger forms appear (Fig. 1, *f, g, d*) and more definite groups of smaller forms (Fig. 1, *e, h, j*). Some of the groups seem to be surrounded by a sort of membrane taking a mixed chromatin and plastin stain, and others seem to be free. These segmented bodies remain longer at the lower temperatures and disappear when the brain becomes much softened.

Secondly, in "street" and "passage" virus brains, many of the large forms appear to become distinctly separated into smaller forms, some within a "membrane" and some in free groups (Fig. 2, *a, h*).

These changes are seen more clearly in brains left in the skull of the animal or in brains excluded from the air by some method such as pouring agar or serum over them. Animals sent in for diagnosis, which have been buried for some time during cool weather, may show these changes quite distinctly.

By animal inoculations with dilutions, material with these segmental-like forms seems to have gained somewhat in virulence. Whether it is a real gain by an actual increase in the number of organisms, or whether higher dilutions are more virulent simply through the breaking up of groups of organisms, thus allowing more even distribution throughout the diluent, has not been decided.

II PASSAGE OF VIRUS FROM CULTURE TO CULTURE

The last cultural method tried is a modification of the tissue-medium method employed by me[5] in obtaining pure cultures of amebas from amebic dysentery.

A thin slice of fresh sterile guinea-pig's brain was placed on freshly made protozoan-agar (Musgrave and Clegg, 1904) plates over a piece of rabbit "fixed-virus" brain the size of a pea. Over this mass was then placed a thick layer of protozoan agar. This was kept at about 25 C. (77 F.).

Transplants were made at the end of seven days by removing the agar, stirring up the mass, transferring about one-fourth of it to a fresh agar plate and covering with fresh brain tissue and agar as before. After each transplant some of the brain mass (about the size of a pea) was made into an emulsion with 5 c.c. normal salt solution, and two drops of this emulsion were inoculated intracerebrally into guinea-pigs. The pigs came down with typical rabies after the inoculation of the fourth culture generation in all of the three series so far tried. By the fifth transplant in these series the material was contaminated, and the inoculated animals did not come down with rabies. The question of dilution of the virus was of course considered, but here again the controls have not yet been sufficient to make sure that some growth, however slight, did not take place.

2. Watson, Ernest M.: The Negri Bodies in Rabies, Jour. Exper. Med., 1913, xvii, 29.

3. Noguchi, Hideyo: Contribution to the Cultivation of the Parasite of Rabies, Jour. Exper. Med., 1913, xviii, 314.

4. Poor, D. E., and Steinhardt, Edna: Two Methods for Obtaining a Virus of Rabies, Freed from the Cells of the Host and from Contaminating Organisms, and Application of These Methods to Other Filterable Viruses or Glycerin-Extracts, Jour. Infect. Dis., 1913, xii, 202; abstr., THE JOURNAL A. M. A., April 5, 1913, p. 1106.

5. Williams, Anna Wessels: Pure Cultures of Amebas from Intestines of Mammals, Jour. Med. Research, 1911, xx, 263.

The larger apparently broken-up Negri bodies (Fig. 1, *e-j*) could not be found except in cases in which the possibility of having a piece of the original brain material in the smear could not be ruled out.

Of course in each brain mass "pleomorphic chromatoid granules" arose, but so did they in the controls, and no difference could be determined between them except that they were somewhat fewer in the controls.

Noguchi says that in culture mediums similar to that employed for the cultivation of the spirochetes of relapsing fever (are we to infer from this that it was the method he found best for these spirochetes, or one of the others, or all?) "very minute granular and somewhat coarser pleomorphic chromatoid bodies arise which on subsequent transplantation reappear in the new cultures through many generations."

Here is nothing definitely new. From Pasteur down, nearly all investigators on this subject have stated at one

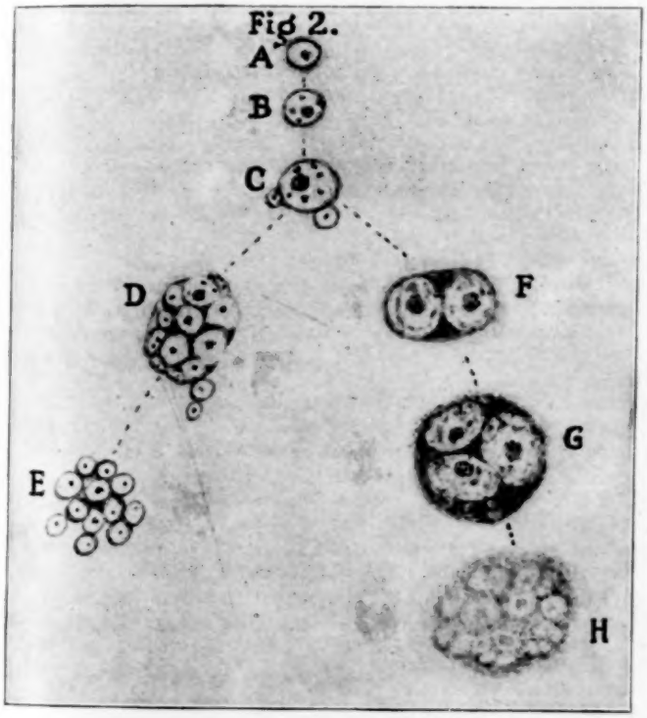


Fig. 2.—From dog "street-virus" brain; *a*, *b*, *c* and *f*, types of Negri bodies seen at death of dog; *d*, *e*, *g* and *h*, apparent multiplication and segmentation of the bodies after three days at 24 C.

time or another that minute and coarse granular pleomorphic bodies are the cause of rabies, and any observer may see granular bodies answering to Noguchi's description, arising in uninoculated tissue mediums after the tissue has undergone a certain amount of degenerative change.

Noguchi continues: "On four different occasions I observed in the cultures from "passage" and "fixed" virus nucleated round or oval bodies surrounded with membranes totally different from the minute granular bodies, although arising in the cultures in which the latter occurred."

Is it certain that these bodies are not merely segmented bodies which are carried over from the original material? We cannot be sure, since no mention is made of culture generations in Noguchi's article, except in the description of the illustration, in which the only note is that two of the observations were made on "a culture (second and fourth generations, five days old)."

In regard to the specific virulence of his "cultures" Noguchi says, "By inoculating cultures containing the granular, pleomorphic or nucleated bodies, rabies has been produced in dogs, rabbits and guinea-pigs."

Here again the culture generation is not stated. Furthermore, as nothing is said about the amount of material transferred, or about the number of days before the transfer is made or about control dilutions in testing virulence, the question may be raised as to whether the positive results asserted were not due to dilution of the original material rather than to continued growth and division of a specific organism. It is hoped that later reports, by making clear these details, will help decide this question.

A CLINICAL REPORT OF SEVEN CASES OF HYDROPHOBIA

TOGETHER WITH A CASE CLINICALLY SIMILAR, WITH RECOVERY FOLLOWING THE INJECTION OF QUININ *

D. L. HARRIS, M.D.
ST. LOUIS

The following seven cases of hydrophobia (Cases 1-7) are reported because of the persistent assertions of so many misinformed persons that no such disease exists, and because of the strenuous opposition which these make against any plans looking toward the elimination of the dog nuisance. Unfortunately, this opposition has the support of a few members of the medical profession and of several widely circulated newspapers. The efforts of the Health Department of St. Louis to lessen the danger of rabies by the capture of stray dogs and the temporary muzzling of owned dogs have been greatly hindered by the editorial opposition of two of the local papers. It is hoped that the brief clinical review of the seven deaths here recorded may in a measure add strength to the documentary and experimental evidence of the existence of hydrophobia, and give pause to those opponents who desire light.

I have also added to these cases the record of a patient (Case 8) whose clinical symptoms were strikingly similar to the others, and whose recovery followed the intravenous injections of quinin and urea hydrochlorid. Although in the latter case biologic proof of the existence of rabies is wanting, I am disposed to regard the diagnosis of hydrophobia as correct and attribute recovery to the drug employed.

REPORT OF SEVEN FATAL CASES

CASE 1.—W. U., aged 12, was bitten, May 18, 1911, by a rabid dog. The injury consisted of two deep punctured wounds on the forehead, one of these just over the supra-orbital notch, 1 cm. long. The wounds were cauterized within an hour with a stick of silver nitrate. Antirabic treatment (Pasteur) was begun on the following day and continued for fifteen days.

On June 18, the twelfth day after the last injection, the twenty-eighth day following the injury, the boy was nauseated and vomited several times. The following day he attended school but felt ill all day and complained of a severe headache. In the evening his physician was called and found him very restless and in great mental distress. He slept but little that night and symptoms steadily increased. Forty-eight hours after the onset he was unable to remain in bed. He ran excitedly around the house, screaming, moaning, groaning and beating his hands against the wall and furniture.

Short periods of comparative quiet alternated with others of pronounced manic restlessness. The saliva flowed freely,

* From the Municipal Laboratory of Pathology and Bacteriology, St. Louis.

was tenacious and ropy, and smeared over his lips and chin. In the periods of relaxation he talked rationally and spoke of his approaching death.

On the third day his restlessness was uninterrupted, convulsions were frequent, he developed delusions and was mildly delirious until his strength gradually failed and he died seventy-two hours after the onset.

Though intensely thirsty, the patient was seized with spasmodic contracture of the pharynx at every effort to swallow. He suggested and tried various devices to drink. He would, for example, close his eyes to avoid the sight of the glass, or he would try to bring it to his mouth suddenly before a spasm would come on. But before he could complete the motion his arm would tremble violently and then stiffen, his pharyngeal muscles contract and his whole body would be held in a rigid spasmodic seizure.

During the twenty-four hours preceding his death he was given six hypodermic injections of morphin sulphate, ¼ grain each, and 80 grains of chloral hydrate by rectum. The only effect of those was to lessen the severity of the convulsive seizures, which came more and more frequently.

No Negri bodies were found in the brain, but rabbits were inoculated with the medulla and all of these died within three weeks. Negri bodies were abundant in all of these.

CASE 2.—On Aug. 3, 1911, G. B., a well-nourished, well-developed Irishman, aged 51 years, walked into the laboratory, having been sent to me by his physician who had not intimated to him the nature of his trouble. On being questioned, the patient said that for two nights he had not slept, that he was nervous and worried, that he had a severe pain radiating down his left arm, and that for the past twenty-four hours he had some peculiar trouble in his throat whenever he tried to swallow. I asked him the cause of a small and insignificant scar on his little finger and he replied that some time during the latter part of April he was bitten by a stray bulldog that had attacked his cat. In driving the dog away it had bitten him on the finger. The wound was not cauterized. On further questioning he admitted a strong aversion to water, even to the thought of drinking it. He was quite convinced, however, that there was no relation between the insignificant dog bite and his present "nervousness."

The symptom of hydrophobia was acutely developed in this case. The suggestion of a bath on admission caused him to tremble from terror and fear. Some hours later the question of a physician, "Have you passed any wate to-day?" was sufficient to start a general convulsion. In spite of this and the patient's clear mental grasp, he did not once associate his condition with the dog bite, nor did he recognize his disease as hydrophobia.

On admission to the City Hospital he rapidly became more restless and hypersensitive to noise, light and drafts of air. Convulsive movements became pronounced, notwithstanding repeated injections of morphin (5½ grains in twenty-four hours) and enemas of chloral hydrate. Twenty-four hours after admission he was seized with a prolonged and general convulsion, after which he rapidly weakened, followed by diaphragmatic paralysis and death August 4, thirty-four hours after admission, and eighty hours after the onset.

A necropsy was held, but the only gross pathologic lesion found was a congestion of the meninges. No Negri bodies were found in the brain, but two rabbits were inoculated with an emulsion of the medulla. These died within three weeks of dumb rabies, and in the brains of both Negri bodies were numerous.

CASE 3.—Feb. 14, 1912, I was invited to be present at a coroner's necropsy on a woman who had died in convulsions. A physician, who had been called in a few hours before death, had pronounced the case one of hydrophobia. The following history was obtained.

A. W., a middle-aged woman, was bitten, Dec. 25, 1911, by a stray dog which her little daughter had found on the street and had brought into the house. After biting the woman, her husband and her daughter the dog was put out of the house and disappeared. The wound was not cauterized.

Five days before death the woman developed a marked pain and itching on her right leg. At the same time she became very excitable, extremely restless and could neither sleep nor remain quiet. A physician who saw her at that time reported that he regarded it as a case of hysteria and prescribed a mild sedative and a local treatment for the itching of the leg. He did not suspect hydrophobia. Her condition grew worse, she became delirious, fought, screamed and was restrained with great difficulty. Another physician was called and found that she could not swallow. Her death occurred a few hours later.

At the necropsy both legs were excoriated and covered with deep scratches. There was a small scar over the left ankle, with a pronounced cicatricial induration. The meninges were congested, otherwise there were no gross pathologic changes. Rabbits injected with an emulsion of the brain developed paralysis and died three weeks later. Their brains contained many Negri bodies.

CASE 4.—H. M., a white man, aged 18, was admitted to the City Hospital, May 22, 1912, with the following history:

April 20, while urinating behind a large signboard, he was bitten on the glans penis by a stray dog. The wound was not cauterized. He at once began reading about the symptoms of hydrophobia, and when a week previous to his admission he began to be restless and nervous and to talk about having hydrophobia his family attributed his condition to worry and fear, and he was given bromids by the family physician. When he attempted to urinate he would have a seminal emission.

Immediately after his admission he was examined by two very competent neurologists. He was rational, but at frequent intervals there were convulsive movements, during which he would throw himself about the bed, seize his throat with both hands and complain that he could not breathe. After such attack he would expectorate large amounts of saliva. These seizures came on every two or three minutes, and a diagnosis of hysteria or pseudohydrophobia was made. He was given ¼ grain morphin sulphate and placed in a quiet, dark room. Four hours later he had a severe convulsion and died suddenly.

At the necropsy the only pathologic condition found was a greatly congested left lung, with large petechiae over the pleural surface. The brain was moderately congested. There was an old healed scar 3 mm. long on the glans penis. No Negri bodies could be found in smears of the cortex, the cornu ammonis or the cerebellum, and none could later be demonstrated in sections. Three rabbits were inoculated subdurally with the brain, and all developed paralysis during the third week. In all the rabbits Negri bodies were abundant in smears of the cornu ammonis.

CASE 5.—June 14, 1913, H. C. H., a man, aged 80, walked into the laboratory and stated that he had come to have an examination made to determine whether or not he was developing hydrophobia. He said that three weeks before he had been bitten on the right wrist by a stray dog. The wound was slight—a single tooth-wound—healed promptly without cauterization and he had given the incident no further thought.

June 11 he did not feel so well as usual and there was or seemed to be a peculiar odor about water which made drinking very difficult. This dislike for water soon extended to milk, beer and all liquids, and later to solid food. He slept but little the night of the 11th and 12th and not at all on the night of the 13th. Partly because of his extreme thirst and partly from something which he could not explain, he became very nervous and irritable. "Choking-spells" developed on the 13th, especially when he lay down, so that he could rest only when sitting in a chair.

As he talked of his condition, his voice and manner indicated a slight excitement. When he lay down on the examining-table he had a spasmodic contraction of the throat muscles that momentarily suffocated him. The pulse was normal, of good quality and there was no apparent fever.

A glass of water placed before the patient produced a most striking excitement. He could look at it from a distance calmly, but could not, try as he might, bring himself to approach nearer. When, unexpectedly, the water was suddenly placed before him he recoiled in a paroxysm of fear, clutched

his throat, and for a few moments breathed spasmodically and with great difficulty. He tried to drink milk, but, as he seized the glass in his hand, he turned his face away and his arm trembled so violently that the contents were shaken to the floor. He had not the control of his muscles to bring the glass to his mouth.

He was advised to enter the hospital, which he did four hours later. On admission he was found to have a temperature of 103.4 and a pulse of 128. He was very irritable and excited and restless. Morphin hypodermically and chloral hydrate by rectum quieted him for short periods. Respiration was difficult at times. He died twelve hours after admission.

At the necropsy no gross lesions were found. There was a moderate congestion of the meninges. Negri bodies were numerous in the cornu ammonis, and two rabbits inoculated with parts of the brain developed paresis during the third week. In the brains of these rabbits Negri bodies were also found in numbers.

CASE 6.—E. A., a white girl aged 13, was bitten, May 20, 1913, by a neighbor's dog which became so irritable and dangerous that on the following day it was shot by a policeman. Neither the owner nor any one else thought the dog had rabies and no report was made to the laboratory. The injury consisted of one punctured wound on the instep of the right foot, the dog's tooth passing through a shoe and stocking. The wound was not cauterized, healed readily, and no further thought was given to the accident.

July 4, forty-five days after the bite, she attended a picnic but came home in the afternoon complaining of a headache and a pain in her throat on swallowing. She was assured by her family physician that there was no connection between this and the bite. She could not sleep that night and on the following day developed a marked fear of water, was very restless and irritable, and was brought to the hospital twenty-four hours after the onset. She was then extremely restless and nervous, with marked hyperesthesia. She could not swallow. Morphin and chloral were administered. Six hours after admission she was seized with general convulsions and died from exhaustion one hour later.

The necropsy showed no gross changes other than congestion of the meninges. Four rabbits were inoculated with the brain. One developed paresis in the hind quarters on the eighteenth day, another became similarly paralyzed on the thirty-fifth day and died on the forty-first. No Negri bodies were found in the patient's brain. In the second, third and fourth rabbits Negri bodies were numerous and relatively large.

CASE 7.—L. S. P., a farmer aged 52, was attacked by his own dog, July 1, 1913, thrown to the ground, and badly bitten on the hand and wrist. The hand was severely mangled and there were punctured wounds on the wrist. The wounds were dressed with an antiseptic, but not cauterized. Five days later, July 6, antirabic treatment was begun, the examination of the dog's head having revealed the presence of Negri bodies.

July 21, twenty days after the injury and fifteen days after the first injection, the patient's hand and arm became very painful. The pain, which was so severe that he could not sleep, continued for forty-eight hours, and on the 23d extended over his shoulder, back and arms. On the 24th he was very nervous, restless and suffering intensely. On the 25th he had difficulty in swallowing, and he was mildly delirious at times. Paralysis had developed in the arm, and he was extremely hypersensitive to touch. He talked constantly and was extremely restless, though no convulsions were noted. He was from the first given large doses of morphin hypodermically.

On the 27th he became more quiet, paralysis and exhaustion grew more pronounced and he died six days after the onset of the first symptoms. No post-mortem was made.

Of these seven cases, necropsies were held in six. Prolonged and careful search of the brain in Cases 1, 2, 3, 4 and 6 failed to reveal a single Negri body, though many smears and sections were made of the cortex, basal ganglia, cornu ammonis, medulla oblongata and cerebellum. In Case 5 Negri bodies were large and abundant. Brain substance from each case was injected into two or more rabbits and all of these without exception developed a paralysis typical of the disease and died. In the brain of every animal Negri bodies were abundant and easily recognized. The shortest period of incubation in the rabbits was twelve days, the longest thirty-five days.

REPORT OF CASE TREATED WITH QUININ

CASE 8.—*History.*—C. B., a white man, aged 73, an itinerant umbrella mender, walked into the laboratory Aug. 29, 1913, and asked for advice about an old dog-bite which had given him a great deal of pain during the past four or five days. He said that five or six weeks before he had been bitten on the right leg by a dog, but, as his occupation made him a frequent object of attacks by dogs, and as he had had "several hundred" during his lifetime, he gave no special attention to this one. The wound healed promptly without medical attention and he had entirely forgotten the incident.

Four or five days before he had felt a tingling and prickling in the right thigh. Then the scar became more and more painful, and the burning and shooting pains were so great that he had not been able to sleep for two nights. He had eaten nothing for two days, and had not been able to swallow without becoming choked. A glass of water was handed to him, but only after a great effort could he swallow one small sip. An intense and suffocating pharyngeal contraction occurred at subsequent attempts.

He was visibly nervous and anxious, and though no mention was made either by him or by me that his symptoms were in any manner connected with the bite, he later confessed that he was so sure he had hydrophobia that he had not dared ask the question lest I should confirm his suspicions.

He was urged to enter the City Hospital at once for treatment, but refused to do this until he could go back to his home. Four hours later he returned, having meanwhile drunk in saloons as much straight whisky as he could force down his throat. The fact that most of these "bracers" never got farther than his mouth, but were immediately expelled, was to my mind valuable proof of the genuineness of his difficulty in swallowing. On admission to the hospital he was somewhat exhilarated by an acute alcoholism, but the difficulty in swallowing had increased perceptibly.

The physical examination revealed several red and painful scars on the outer surface of the left thigh. The cicatricial thickening and induration around these scars was pronounced and somewhat in excess of that usually observed in ordinary wounds of equal severity. Otherwise, the examination disclosed no physical abnormality. Temperature, 99.2 F., pulse 102, respiration 24. Reflexes normal.

These symptoms warranted, in our opinion, a diagnosis of hydrophobia, and in consultation with Dr. Ralph Kinsella, resident physician of the City Hospital, it was agreed that he should be given injections of quinin as suggested by Moon.[1] Quinin and urea hydrochlorid was chosen because of its solubility.

Treatment and Result.—At 5 p. m., August 29, 15 grains of quinin and urea hydrochlorid, dissolved in 3 c.c. of salt solution, were administered intravenously. This dose was repeated at 7 p. m., 9 p. m., 11:30 p. m., and on the next day at 9:45 a. m. and 11:30 p. m., making a total of 90 grains within twenty hours. Following the second injection at 7 p. m. the patient said all pain in the thigh and over the area of the bite had disappeared. At 7:30, August 29, he drank without difficulty 6 ounces of milk and an equal amount at 11:30 p. m. At 7 a. m., August 30, he drank 6 ounces of milk, 6 ounces of coffee, and ate two crackers and a slice of bread.

He had, however, spent a very restless night, and on account of a fine tremor and a nervousness which suggested delirium tremens, he was given at 9:30 a. m. 4 drams of paraldehyd, and an equal amount at 1:30 p. m. He slept at intervals throughout the day and the following night. He had no return of the pains or the difficulty in swallowing and was discharged September 2, four days after his admission.

1. Moon: The Effect of Quinin on Rabies in Dogs, Jour. Infect. Dis., 1913, xiii, 165.

Nine hours after the fourth injection of quinin and urea, a spinal puncture was made and 25 c.c. of clear cerebrospinal fluid were withdrawn; 0.5 c.c. was injected subdurally into two rabbits and one guinea-pig and 1 c.c. was injected into the region of the cervical plexus of three guinea-pigs. After thirty-five days none of these animals has shown any symptoms of rabies.

CONCLUSION

This experiment, and the fact that the patient recovered, creates a question as to the correctness of the diagnosis, which, as has been seen, rests solely on the clinical history. The failure of the inoculated animals to develop rabies is in no sense proof that the disease was not rabies. Marie records that Lesieur and Wissokowitch have inoculated animals with the spinal fluid obtained from six cases of hydrophobia with negative results. Cell-free spinal fluid is rarely infectious in rabies.

The fact that the patient had been bitten many times before by dogs and had come to regard these as incidents to his trade, that he had not considered the last one of sufficient importance to seek medical attention, and that it had altogether escaped his attention until the pain began, is an important factor in excluding hysteric fear of the disease.

The general appearance of the patient, the onset with pain localized in the region of the bite, followed by restlessness, a profound anxiety, insomnia and finally his utter inability to swallow water and his dread of attempting it, seem sufficient to warrant the diagnosis of hydrophobia.

If it was a case of this disease, did quinin cure? Although only further use can determine the value of this drug in hydrophobia, the experiments of Moon, though few, seem to support this conclusion.

1426 Carroll Street.

HOLDING FRACTURES WITH ABSORBABLE MATERIAL—IVORY PLATES AND SCREWS

A NEW METHOD *

P. B. MAGNUSON, M.D.
CHICAGO

Since 1908, while working in the research laboratories of the University of Pennsylvania, at the problem of lengthening shortened bones of the leg, I have been trying to devise some method of holding fractures by inserting into the fractured bone some retention apparatus which would not act as a foreign body, and which would be absorbable by the surrounding structures, eliminating the necessity of subsequent removal, which is so often necessary when steel is used. In our experiments[1] we found that ivory was very acceptable to human bones, did not cause softening of the surrounding bone, was gradually absorbed and did not become loose, since the bone grows in as the ivory is absorbed. The ivory also has the property of being strong enough to stand any strain the muscles attached to the broken fragments may put on it.[2] It was a simple matter, therefore, to devise ivory screws of proper size to hold the oblique fractures, but screws alone could not be used in holding transverse fractures. It was necessary to devise some other method for holding these.

Let us first take up the action of the tissues on ivory, then the method of holding oblique fractures, and last the method here reported for the first time of plating transverse fractures with ivory. In our experiments, it was found that ivory, being an animal matter and capable of absorbing some moisture, could be inserted into the bone with very little force, and after remaining for twenty-four hours it absorbed enough moisture to make a plate or screw which, when first inserted, was only moderately close to the surrounding bone, fit into the place made for it so tightly that it could not be moved without a great deal of force. This led us to believe that this advantage alone would be enough to warrant trying it in place of steel plates, since steel screws and plates when in close contact with bone cause softening of the bone immediately in contact with the steel, and eventually loosen up, causing irritation of the surrounding structures and allowing angulation of the bone at the seat of fracture, if the muscles tend to a displacement. Ivory does not offer this advantage alone. When in close contact with living healthy bone, ivory is gradually absorbed (Fig. 1). The process of absorption is somewhat of a mystery at present, since we were unable to find osteoclasts except in a few places. The fact remains, however, that plates in the human bone were greatly eroded in six weeks (Fig. 2), and the screws removed from a dog's tibia showed great erosion in three to four weeks, with absolutely no loosening of the hold of the ivory on the bone or vice versa.

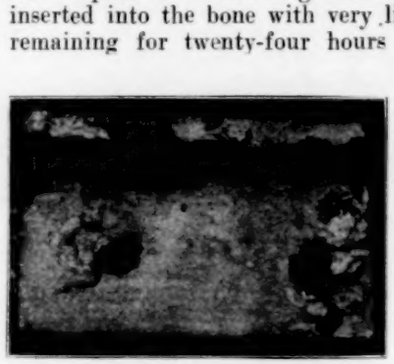


Fig. 2.—Ivory plate and pegs removed from patient after six weeks. Fracture became infected on account of necrosis of skin from trauma although three weeks elapsed between date of injury and first operation. Note erosion of pegs and plate at each end. The ivory stimulates new bone formation when inserted in medullary cavity. Note large amount of erosion at ends which were farthest from fracture. Plate was in close contact with bone and still holding fragments firmly when removed.

Fig. 3. — A, ivory screw with removable brass head; B, carving chisel used for loosening fragments. Thin blade, double bevel, makes it much easier to handle than ordinary bone chisel; C, top used for cutting threads on inside of hole in bone; D, V-point drill cuts through bone and ivory much faster than other types.

The method of applying the screws is as follows: In an oblique fracture the fragments are pulled down into place and clamped with a Lohman clamp. A hole is then drilled through the two fragments, the diameter of this hole being the diameter of the screw to be used, taken at the base of the thread (Fig. 3 D). A tap (Fig. 3 C), such as mechanics use for cutting a thread on the inside of a nut, is then put through this hole and threads cut on

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Lengthening Shortened Bones of the Legs by Operation, Univ. Penn. Med. Bull., May, 1908.

2. Lengthening Shortened Bones of the Leg by Operation, Surg., Gynec. and Obst., July, 1913.

the inside of the hole exactly the same size as the screw to be used. The tap is then removed and an ivory screw (Fig. 3 A) of proper size made of straight-grained ivory, pointed at one end and with a removable brass head on the other, is inserted into the hole with little force. The ends of this screw are then cut off flush with the bone on both sides.

In the femur or in a large bone it is sometimes necessary to use two of these screws, but in an oblique fracture of a small bone it is seldom necessary to use more than one. This leaves nothing projecting beyond the bone cortex to irritate the soft parts, and the ivory screws, if used in proper size, are strong enough to hold any fracture of any bone. The longer they stay in, the tighter they will hold (Figs. 4 and 5).

METHOD OF APPLYING PLATES

The ivory plates which are used in transverse fractures measure 2 inches in length, 1 inch deep, by 1/8 inch in thickness, and the large size are 2½ inches long, 1½ inch wide, and 3/16 inch thick. These plates are set into bone so that the plane of the plate is at a right angle to the greatest tendency to displacement of the fragments. The technic is as follows:

With a circular saw having two parallel blades at proper distance apart to cut a slot exactly the same width

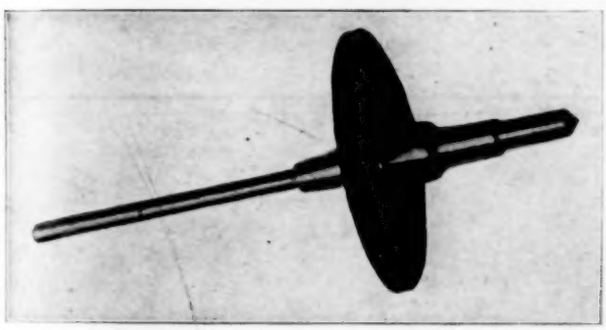


Fig. 6.—Circular saw with parallel blades for cutting slot in bone. Blades are removable and washers of various thicknesses may be inserted to insure lines exactly the right distance apart to accommodate the ivory plate.

as the plate to be used, two longitudinal parallel incisions are made in the long axis of the bone, crossing the fracture (Fig. 6). These incisions are the same length as the plate which is to be used (Fig. 7, *a*). After making the incisions in the bone, a hole is drilled at each end of the parallel cuts and joining their ends (Fig. 7, *b*). This allows us to lift out a flat plate of bone from one side of the cortex (Fig. 7, *c*). We now have a slot cut in one side of the bone, exactly the same size as the plate of ivory which is to be used. Into this slot is driven an ivory plate, until the lower edge strikes the cortex on the opposite side of the medullary cavity (Fig. 7, *e*). A drill is then put through the bone and plate at each side of the fracture, and at angles to the plane of the plate. Into these holes ivory pegs or nails are driven and cut off flush with the cortex on both sides (Fig. 7, *d*). If the plate projects above the bone, this is also cut off flush with the bone, leaving nothing to injure or irritate the soft parts (Figs. 8 and 9).

We now have the plate mortised into the bone, held firmly on both sides by the cortex and prevented from any motion up and down by the pegs passing through it transversely. We can plainly see that mechanically there is no possibility for motion between the ends of the fragments, and no chance in the world for an angulation, which is so common when steel plates are used, especially in the femur (Figs. 10 and 11). Of course live bone from the same individual would be preferable in doing this operation, but there are a number of objections. In the first place, it complicates the operation, making two operations necessary and much manipulation inside of the wound when fitting the bone splint. One must also take into consideration that the width of the saw-blade in taking out a longitudinal strip of this kind will make considerable difference between the size of the bone splint and the size of the slot out of which it came. Live bone, of course, would be absorbed more quickly, but so far as we have been able to judge from the toleration of ivory by the tissues, this would be the only advantage.

The after-treatment of these cases is, I believe, as important as the operative treatment. In all fractures that I have operated on within the past two years I have made it a rule to treat them after the operation just as I should have treated them if no operation had been performed. By this I mean that if the muscles tend to displace one fragment outward, and the other inward, a point is made to put the limb in the position which will best balance the pull of the muscles, and put the least amount of strain on whatever apparatus is used. This is an important point in treating all fractures to prevent any possibility of angulation, and also to prevent shortening, especially in cases of fracture of the femur. Extension is used in practically all fractures of the humerus or femur after the operation for four or five weeks. This, we believe, prevents the necrosis which so often occurs at the ends of the fragments, allowing shortening. It also tends to tire the muscles out and hold the bone in line, and whether ivory or steel is used, we get better results by this sort of careful after-treatment than if the retention apparatus inserted in the bone alone were trusted.

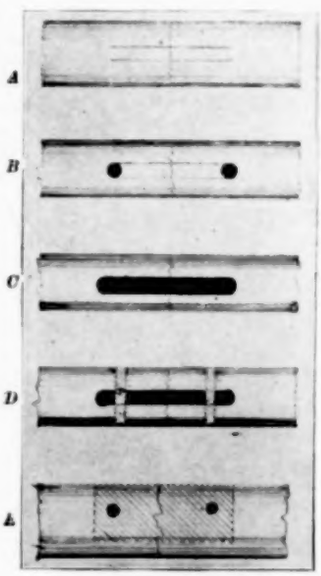


Fig. 7.—A, parallel lines cut at right angle to line of fracture; B, holes drilled at each end joining lines leaving loose piece of cortex in center; C, slice of bone lifted out of one side of cortex leaving slot through to inside of medullary canal and looking against cortex of opposite side; D, holes drilled through cortex and plate at an angle to plate, and ivory pegs inserted, holding plate firmly in slot. The bone braces plate on both sides and pegs hold its edge against cortex of other side and same time keep it from slipping out; E, longitudinal section view of plate set into bone. Pegs do not necessarily have to be at right angles to plate. Any angle will hold the plate in the bone.

CONCLUSIONS

1. Ivory is absorbed when in close contact with living healthy bone.

2. It does not loosen as do other materials when inserted in bones.

3. It does not produce necrosis or softening in the bone immediately in contact with it.

4. The advantages of the use of ivory screws in oblique fractures are that there is little manipulation; the screws maintain a strong hold on the fragments; there is no irritation as in cases in which metal is used, and there is nothing to be taken out after the fracture has healed.

5. The advantages of ivory plates in transverse fractures are; they fit closely into the fragments; do not loosen up; they are strong enough to withstand any pull made by muscles attached to the fragments; they will not allow angulation, especially if put in at right angles to the greatest tendency of displacement, or, better, at right angles to the greatest pull of the muscles, they will be gradually absorbed, and never act as a foreign body in the bone.

4137 South Halsted Street.

ABSTRACT OF DISCUSSION

DR. F. J. COTTON, Boston: The first of those plates did not show an osteoblastic absorption, but, rather, a granulation absorption.

DR. PAUL B. MAGNUSON, Chicago: This plate was practically translucent when I took it out. In six weeks it had softened so much from the absorption of fluids and become tightened into the bone so firmly that it was difficult to get it out. It is eroded at both ends, but little in the middle, at the seat of the fracture. It was just outside the seat of fracture that the greatest erosion took place.

DR. D. B. PHEMISTER, Chicago: Most of the osteoclasts producing absorption of dead bone or ivory are not giant cells, but the ordinary fibroblasts. In my histologic work I have observed extensive lacunar absorption where giant cells were entirely absent.

DR. JOHN PRENTISS LORD, Omaha, Neb.: I should like to have Dr. Magnuson tell us whether he does not think that such work as this would be likely to be undone, unless there is some apparatus for holding the plate securely until the final dressing is applied. It seems to me that there is an opportunity for caution against undertaking to do this work without a fixation apparatus; otherwise I should think that the screws would break in inexpert hands.

DR. FRED H. ALBEE, New York: Last year, in the Surgical Section of the American Medical Association, and in the American Orthopedic Association, I reported a scheme similar to this for holding ivory. I have applied it to the femur and other bones, and have had no trouble with breaking of the bone. I have used it as a bone-graft larger in size than this ivory plate; but the bone-plate is in there in an efficient manner mechanically, I believe. Dovetailed, as it is, it holds the fragments efficiently.

DR. PAUL B. MAGNUSON, Chicago: I agree with Dr. Albee that a live bone-graft is the ideal substance. I doubt that it is tolerated by the tissues better, but it is more stimulating to the growth of bone than anything else. Unfortunately, we cannot always get a piece of bone to fit accurately. We must do two operations; and few of us are skilful enough to fit a piece of bone into a slot. It requires great experience in this line of work. This operation was designed for the use of the average man doing bone surgery, so that he cannot possibly make a mistake. All that has to be done is to cut exactly the width of the space he wishes to fit the plate into with parallel circular saws, joining the ends of these incisions, and then drill two holes exactly the size he needs; he then has a plate that fits the slot exactly. After the two holes are drilled, put in the ivory pegs at an angle to the plate through both sides of the bone. The procedure is mechanically accurate. The ivory would not, of course, hold on the outside of the bone, because it is not strong enough; but when it is braced by the cortex on each side it will hold, because it is mechanically correct.

As to Dr. Lord's remark about handling a fracture carefully, of course, this is my baby and my pet, and we are sometimes prejudiced in favor of our own children. Nevertheless, I have maltreated these plates before sewing up the wound, purposely, in order to see whether or not I could pull them loose. I would rather have them come loose at that time than after the patient has gone back to bed, and therefore have taken particular pains to try to break them beforehand; when I put the patients back to bed, I feel sure that the plate will hold its position until the extension apparatus, or whatever I use, is taken off. I have never had the pegs break. There is practically no strain on them. They are put through the upper side of the cortex and there is no leverage to snap them off. If we had leverage, that might happen.

Fig. 8.—Fracture of both bones of the leg.

Fig. 9.—Same as Fig. 8, one day after operation. Ivory plate in tibia. Pegs seen as faint shadows on each side of fracture.

A DISCUSSION OF VARIOUS ANESTHETICS AND METHODS

EXPERIMENTAL OBSERVATIONS *

BERNARD FRANCIS McGRATH, M.D.
ROCHESTER, MINN.

The purpose of this paper is, first, briefly to discuss the present status of the question of anesthetics, secondly, to contribute data from the Mayo Clinic, and, lastly, to present some preliminary observations on an experimental work which is to be continued at length.

A stimulus has recently been applied to the question of anesthesia, which has resulted in a wide-spread interest and in laudable endeavors toward advancement. New anesthetics and various combinations have been employed, apparatus aiming at accuracy has been designed and different routes of administration have

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* From the Mayo Clinic.

been practiced. Commendable and seemingly progressive as are all these efforts, still does not their multiplicity itself emphasize the general state of inefficiency that exists?

To enumerate and describe the several anesthetics, devices and methods which have been advanced would be an unnecessary repetition, since their details are already known, or at least are easily available in the literature. Each has enthusiastic advocates, but which can withstand the test of time?

It has been authoritatively stated that any of the recognized anesthetics or methods is safe in the hands of an expert anesthetist. In an endeavor to place this phase of surgery on an efficient basis should we not begin by investigating the undermost stones in the foundation? In analyzing these is not the administrator of the anesthetic one of the first to attract our attention? Embodied in the expert are those qualities which are essential for the successful production of anesthesia. He guards against the use of anesthetics which contain impurities; his extensive experience frequently enables him to obviate deleterious psychic conditions preceding the operation; his skill in administering ameliorates the mental and physical disturbances of the initial stages of anesthesia; he avoids the recognized nocuous effects caused by vacillation between a light and deep state, and finally, the expert administers the anesthetic only in amount sufficient for the conditions, thereby reducing to the minimum immediate postanesthetic and remote organic effects.

Crile speaks of "two great classes of a sociation, namely, those that are injurious and those that are beneficial. The injurious kind are called 'noci-association,' that is, nocuous or injurious associations." Crile's scientific defense of his theory, together with his and others' observations of its practical application, is sufficiently convincing to demand serious consideration and a general effort to test its soundness.

Although extrinsic to the patient, yet seemingly comprehended in this principle, are certain other "noci-associations" which, until recently, were nearly omnipresent in the hospitals of this country, and even to-day exist to a culpable degree. I refer to the inexperienced house-officer as the official anesthetist of the hospital, and the indirect detriment which results to the patient through the mental disturbance, and, in consequence, the curtailed efficiency of the operator. The chain of asepsis may be intact, the surgical assistants adequately equipped with skill and discipline, and the surgeon most able; but, with the patient at one period rigid and practically inoperable, the next period assuming an ante-mortem aspect, the operator must necessarily be incapable of his best effort. Therein an injustice has been done, since the benefit to the patient, if the anesthetist be excepted, is not commensurate with the pathologic condition which he presents and the efficiency of his environments.

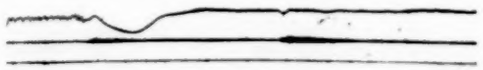


Fig. 1.—No. 635 a. Intravenous ether, 5 per cent. First part of tracing, no anesthesia. Note the result of careful induction and maintenance of anesthesia. Duration one and one-half hours.

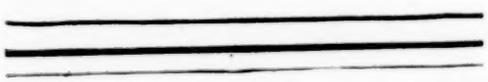


Fig. 2.—No. 635 b. Tracing made at the end of one hour, surgical anesthesia, intravenous ether, 5 per cent.

Fig. 3.—No. 681. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note early effects of anesthetic on cardiac action and respirations and relation of respiratory failure to effect on heart. Spontaneous recovery.

Fig. 4.—No. 677. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note induction of light anesthesia in first and second thirds of tracing. In the last third note effect of "full flow" for twenty seconds (solution, 126.60 c.c., ether, 6.30 c.c.). No recovery. Heart failed about two minutes after cessation of respirations.

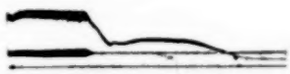


Fig. 5.—No. 615. Intravenous ether, 5 per cent. Showing effect of overdose—"full flow," thirty seconds (190 c.c. solution; ether, 9.5 c.c.). Note continuance of cardiac action (upper line) for about four minutes after cessation of respirations.

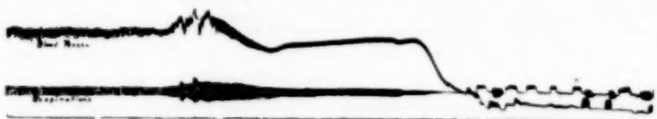


Fig. 6.—No. 675. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note effect of accidental overdose and ineffectual efforts at resuscitation. Total solution, 450 c.c.; ether, 22.5 c.c. Time, six minutes.

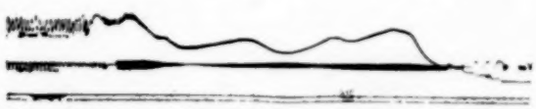


Fig. 7.—No. 672. Intravenous ether, 5 per cent. First part of tracing, no anesthesia. Note induction of anesthesia, practically synchronous cardiac and respiratory failures and ineffectual efforts at resuscitation. Total solution, 300 c.c.; ether, 15 c.c.

Fig. 8.—No. 682. Intravenous ether, 5 per cent. Note relation of respiratory to cardiac failure and the ineffectual efforts at resuscitation, when artificial respiration, heart-massage and abdominal pressure were begun late. Total solution, 350 c.c.; ether, 17.5 c.c.

The best anesthetic administered by the most expert anesthetist would be the ideal in anesthesia. Such an ideal condition is no more feasible than that every surgical operation be performed with the best technic by the most skilful surgeon. The reasons are obvious. That the expert anesthetist is not now and never will be generally available is self-evident, but that there is a vast territory of the medical field in which such idealism could and should be applied the most skeptical will not deny.

It is but truth to state that medical schools in general have not adequately taught and emphasized this seriously important branch of medicine. In many instances men are graduated with little theoretical and far less practical knowledge of the subject. Just as the student with a bent toward surgery, pathology or any of the other branches of medicine should be encouraged and scientifically trained in that direction, so, too, should the one

adapted to the work of anesthesia be similarly encouraged and guided.

One has but to scan the statistical history of anesthesia to note the wide divergence of results. This diversity seems to be due primarily to a lack of parallelism of all the factors concerned. Some of the obviously essential factors in estimating the comparative value of anesthetics and methods are the purity of the drugs, the skilfulness of the anesthetist, a reasonable parallelism in the number of cases observed and the condition of the patients.

The comparative value of the anesthetics more recently advanced and the methods of administering them are at present and for some time must remain in the balance.

It is easily conceivable that some of the more recently advocated methods of inducing anesthesia are positively indicated in some operative procedures, and at least helpful toward efficiency in others. This is particularly true when applied to operations about the head and neck and within the thorax. In this regard the methods of Crile, Meltzer and Auer and others are particularly applicable. The indications for the intravenous administration of anesthetics seem at present to be very limited, although time and research may radically alter this view.

In making a wide survey of the field of surgical achievements, including statistical history, supplemented by the opinions of keen and progressive observers, no other anesthetic or method for application in general is so soundly supported by time and experience as ether administered by an expert, with a due allowance of air to the patient. Compared with other anesthetics and methods, ether by the so-called "drop" method is at least as immediately safe, is more available, more economic, and more conducive to efficiency in extensive work. I am not cognizant of data sufficiently reliable and extensive to prove that in the hands of the skilful, the immediate deleterious effect on the condition and comfort of the patient, and the remote effect on the organs of the body are more than those of any other anesthetic or method.

The advancement which is being made in the application of local anesthetics augurs well for substantial aid to surgery along these lines and this affords a most fertile field for research. General anesthesia is at best a fairly wide deviation from the normal, but, in the present state of our knowledge, is absolutely indicated in many cases. With the scientific advancement of local anesthesia, we may hope to see the number of indications for general anesthesia reduced to a minimum.

Finally, praiseworthy and seemingly progressive as are the various endeavors which are being made in the application of new general anesthestics and methods, nevertheless it appears that one of the most essential steps, if not, indeed, the most essential step, toward placing the question of anesthesia on an efficient basis is the training and encouragement of the skilled anesthetist.

Fig. 9.—No. 683 c. Intravenous ether, 3 per cent. First third of tracing shows effects of "overdose"—ether 9.4 c.c. in one minute and epinephrin 3 drops; middle third, temporary signs of recovery, with subsequent failure, despite efforts at resuscitation.

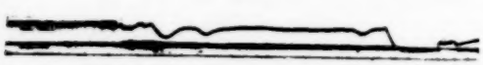


Fig. 10.—No. 673 a. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note induction in middle third and effect of twenty seconds' full-flow—solution, 126 c.c.; ether, 6.3 c.c. in last third. Abdominal pressure. Recovery.

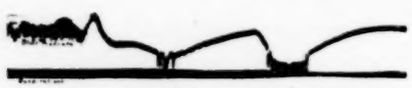


Fig. 11.—No. 633 a. Intravenous ether, 3 per cent. First part of tracing, no anesthesia. Note induction of anesthesia (light). Last of tracing depicts the effects of 30 seconds' "full flow," 4.7 c.c. ether, with spontaneous recovery.

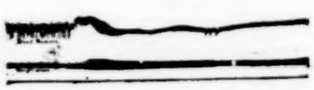


Fig. 12.—No. 688. Inhalation ether, automatic. First part of tracing, no anesthesia. Surgical anesthesia in about two minutes. Note on tracing good result of careful induction and use of air with ether.

Fig. 13.—No. 319 b. Inhalation ether, automatic. Note in middle third of tracing the effect of uneven administration of anesthetic. Upper tracing, cardiac; lower, respiratory. Spontaneous recovery.

Fig. 14. No. 676. Intravenous chloroform, 1.5 per cent. First part of tracing, local anesthesia. Note effect on cardiac action during induction of anesthesia. Spontaneous return to normal.

Fig. 15.—No. 657. Intravenous chloroform, 2.5 per cent. First part of tracing, local anesthesia. Total solution, 475 c.c.; chloroform, 11.87 c.c., in eleven minutes. Note cardiac and respiratory failure. Efforts at resuscitation futile.

Fig. 16.—No. 621. Intravenous chloroform, 2.5 per cent. Note induction and failure in first and middle third. Cardiac action and respirations ceased almost simultaneously. Efforts at resuscitation effectual.

DATA FROM THE MAYO CLINIC

From the year 1900 to the beginning of the present year the respective numbers of general anesthetics administered were as follows: ether, 49,057; chloroform, 1,300; nitrous oxid (usually nitrous oxid-ether sequence), 1,000, and ether-chloroform sequence, 796. The nitrous oxid administrations were made during the years from 1900 to 1904, inclusive. Since 1907 chloroform alone has been employed in one case. The mode of administering ether is the so-termed "drop" method. Besides the before-mentioned, several of the local anesthetics were employed.

No death ascribable to the anesthetic alone has been noted. None of the present anesthetists has even administered a stimulant hypodermically during operation. Excitement in the initial stages of anesthesia has been very rarely observed. Postanesthetic effects, such as nausea and vomiting, have been, as a rule, inconsiderable.

PRELIMINARY ADMINISTRATION OF DRUGS

In cases of exophthalmic goiter in which operation was performed without general anesthesia, scopolamin, 1/200 grain, and morphin, 1/6 grain, is used. If a general anesthetic is to be administered, atropin 1/150 grain, is also employed. In operations for ordinary goiter, morphin, 1/6 grain, and atropin, 1/150 grain, are used. In operations on the stomach and rectum, morphin, 1/6 grain, is used. If a patient has had bronchitis or a cold, morphin, 1/6 grain, and atropin, 1/150 grain, is employed. Scopolamin and morphin are administered to quiet nervousness, but apparently as a result increased excitement has been occasionally observed. It is considered probable that following the use of these drugs a smaller amount of the general anesthetic is necessary. In operations on the stomach the preliminary dose of morphin makes it feasible to decrease the amount of general anesthetic during the work in the abdominal cavity. Atropin causes and maintains a dry condition of the upper portion of the respiratory tract and is regarded by the anesthetists as very effective when indicated. Generally speaking, however, ether alone is used, the aforesaid drugs being employed only in exceptional cases under special indications.

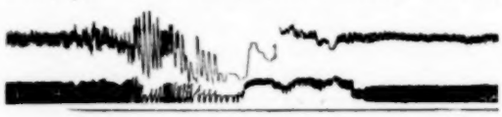


Fig. 17.—No. 217. Inhalation chloroform, automatic. Note primary cardiac and respiratory failure and the effect of prompt artificial respiration by tracheal insufflation. Duration of anesthesia, one hour and four minutes.

Fig. 18.—No. 687. Inhalation chloroform, automatic. Note early cardiac failure and futile efforts at resuscitation.

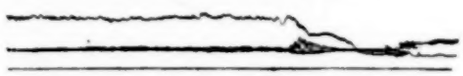


Fig. 19.—No. 634. Intravenous ether, 5 per cent. First and second thirds of tracing, no anesthesia. Last third shows effects of air entering tube during induction of anesthesia—about 100 c.c. air. No recovery, despite efforts at resuscitation. This indicates the danger of a defective apparatus.

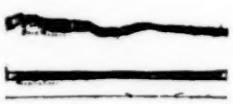


Fig. 20.—No. 683 b. Intravenous ether, 3 per cent. Surgical anesthesia. Tracing shows absence of evil effects when tube to vein is completely severed while solution is flowing.

Fig. 21.—No. 665. Local anesthesia. Air-embolism syringe, 60 c.c. air, in fifteen seconds. Spontaneous recovery.

The present tendency of the clinic is toward amplifying the employment of local anesthetics.

EXPERIMENTAL OBSERVATIONS

During the past three months I have been pursuing experimental investigations on the subject of general anesthesia. The work thus far done is admittedly academic, but designedly presented at this stage not so much for discussion of the indefinite results obtained as for criticism of the procedure as a method of studying and teaching the subject. The object in view is to continue the work at length, investigating the various recognized anesthetics and methods, whatever new may be advanced, studying not only immediate but also remote effects on the organism, and prolonging the work in series sufficiently extensive for deductions of practical value.

One hundred and fifty-three experiments have thus far been undertaken on 145 dogs. The anesthetics employed are ether, chloroform, paraldehyd, combined paraldehyd and ether, urethane, and nitrous oxid-oxygen-ether.

Fig. 22.—No. 408. Intravenous ether, 5 per cent. Note effect of air-embolism—syringe, 100 c.c., air in fractional injections in first part of tracing. Spontaneous recovery. Light anesthesia.

Fig. 23.—No. 649. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note induction of anesthesia in first third of tracing, effect of air-embolism, about 60 c.c. slowly, in middle third. Spontaneous recovery, light anesthesia, but sudden cardiac and respiratory failure after a small dose of ether. Unsuccessful efforts at resuscitation.

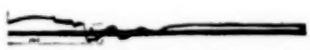


Fig. 24.—No. 673 b. Intravenous ether. Air-embolism—50 c.c. air in fractional doses, few seconds apart. Compare effect on heart, upper line, with respirations. Spontaneous recovery.

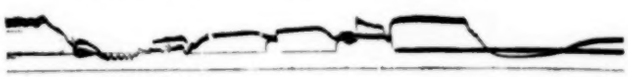


Fig. 25.—No. 646. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note early respiratory and later cardiac failure. Efforts at resuscitation successful. Air-embolism, about 70 c.c., slowly injected. Shown in last third of tracing. Spontaneous recovery.

Fig. 26.—No. 637. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note cardiac action and respirations during induction of anesthesia. Final third of tracing is a picture resulting from an injection of about 50 c.c. air into femoral vein, tracheal insufflation of air and abdominal pressure. Recovery during light anesthesia.

The methods of administration used are the intravenous, automatic inhalation, insufflation and rectal. Kymographic records of cardiac action and respirations have been constantly made. Owing to the brevity of the time and the extent of the work, the investigation of some of the anesthetics and methods has been too limited for presentation.

Ether has been administered intravenously 85 times, chloroform 19, paraldehyd 2, and combined paraldehyd and ether 3; by the pulmonary route, ether 27 times, and chloroform 8. Besides these experiments, a series of histologic examinations has been begun for the purpose of studying the effects of the various anesthetics on the tissues of the body. An endeavor will be made to make this work as complete as possible, and sufficiently

extensive for data of value. Although some excellent observations have been reported on this phase of the subject, still it seems that in general attention has been mainly focused on the immediate deleterious effects of anesthetics, somewhat to the neglect of their remote effects on the organism.

In the present limited series the procedure has been to study immediate effects during the induction of anesthesia, the results of overdosing, uneven administration, anesthetics with probable impurities and the efficacy of various methods for resuscitation applied early and late in cardiac and respiratory failure, such as insufflation, abdominal pressure, heart-massage and stimulating drugs injected directly into the circulation. With local anesthesia it has been practicable to obtain normal tracings of cardiac action and respiration for comparison with the various phases of the tracings which followed.

The intravenous method has been employed 109 times. In normal saline solutions the following strengths of anesthetics have been used: ether, 5 and 3 per cent.; chloroform, 2.5 and 1.5 per cent.; paraldehyd, 2 per cent.; ether, 5 per cent., and paraldehyd 1 per cent. Hedonal and other anesthetics will be added to the list in the further progress of the work, and Ringer's solution will replace the saline solution which has been used.

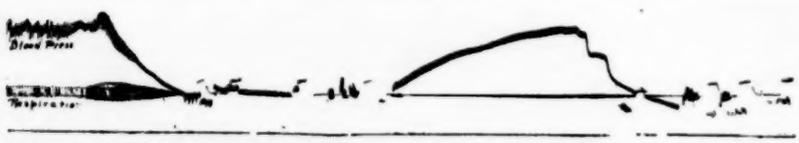


Fig. 27.—No. 678. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. In first third of record note very early cardiac and respiratory failure. In middle third effectual efforts at resuscitation. In last third fatal effect of air-embolism—about 60 c.c. air within twenty seconds. Help ineffective.

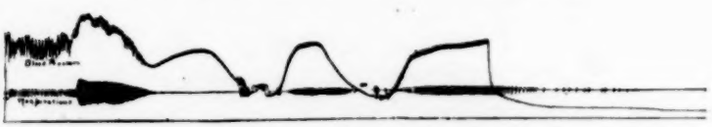


Fig. 28.- No. 674. Intravenous ether, 5 per cent. First part of tracing, no anesthetic. Note primary anesthesia with early respiratory failure and its relation to cardiac failure. Artificial respirations and heart massage; recovery and again failure on adding small amount of ether. Recovery with help. Air-embolism—60 c.c.—syringe. Sudden and fatal cardiac failure. Slight spontaneous efforts at respiration toward end.

Fig. 29.—No. 680. Inhalation ether, automatic. Light anesthesia. Total amount of air injected into femoral vein, about 300 c.c. First drop is effect of 100 c.c. air in twenty seconds, second and third drops, 100 c.c. in fifteen seconds each. Note that respirations are little affected. Recovery, but animal died two days later. Air in heart and quite generally in veins.

AIR EMBOLISM

The question of air embolism has been studied in association with the experiments on intravenous anesthesia. This has consisted of the injection into the femoral vein of large amounts of air, from about 50 to 100 c.c. at once, and large amounts fractionally. Observations on the effects of air embolism have been made with local, light and deep general anesthesia.

As previously intimated, the results of experimentation will not be discussed at this time. A clearer idea of the plan of the work is better seen depicted on the limited number of the accompanying kymographic records.

ABSTRACT OF DISCUSSION

DR. TORALD SOLLMANN, Cleveland: The paper has helped to confirm some conclusions I had formed on this subject. Any anesthesia is a departure from the normal. For that reason it is impossible to expect that we shall ever find a "fool-proof" anesthetic. The improvements that are needed are in intelligent use. With intelligent use the present anesthetics will suffice to produce relatively safe anesthesia. The safety is proportional to the intelligence with which the anesthetic is administered. For intelligent administration as many positive data as possible are necessary and the present investigation helps to this end.

DR. ALEXANDER S. VON MANSFELDE, Ashland, Neb.: I have perhaps been placed most happily in my work in surgery, for the reason that I had an unusually fine anesthetist, my wife, who gave chloroform for me for thirty years. I never for a moment had to think of my anesthesia when I operated. Three times in my career it has happened to me that my patients came near dying, although only one of them gave me a great deal of work. Some of you who are informed on anesthesia know of the report of the Hyderabad Commission in England. The essence of that great piece of work seems to have been that it was a difference in the temperature, of moisture and warmth, that made the commission endorse chloroform above all other anesthetics. After reading that report carefully, I concluded that I would try out the work of that commission and I made what is called in physics a moteless chamber of my operating-room. I superheated it a short time before the operation and had it intensely moist and let it come down to a temperature of 103 or 104 F. and kept it there. Remarkable as it may appear, I had no shock in severe abdominal operations when the temperature was from 103 to 104 F. I never, under any circumstances, had the bad results which are said to accompany anesthesia, and that was because the anesthetist gave medicinal and not poisonous doses of the chloroform. You cannot conceive the necessities that come to the surgeon as they came to me in the early history of the state of Nebraska, where I had to be everything and do everything in an operation, many times under conditions and circumstances that you will think abominable. Yet I lost no one from chloroform anesthesia. Now who would be able to go and do a rather lengthy and severe piece of surgery with absolutely no assistant whatever except the farmer's wife or daughter picked up for the occasion? Who of you would undertake to perform a difficult and lengthy operation with ether with an inexpert person to give it?

Try it and see what you think of it. With chloroform I could watch the giver; I could not with ether. I would emphasize again the fact that medicinal doses of chloroform are perfectly safe. I removed an ovarian tumor and my wife gave just 2 drams of chloroform during the whole operation. I did the operation in just nineteen minutes. The point I make is that the surroundings of the case are most important. The atmosphere, if it can be brought to the condition of the Hyderabad temperature and climate, will produce the same effect on the use of the chloroform here as it had there. The sum total of it is that someone who knows how should give chloroform in the best possible surroundings and never beyond a medicinal dose.

DR. CLYDE BROOKS, Pittsburgh, Pa.: In regard to the method of giving anesthetics I would speak of a method we used in giving it to animals. I found that valves produced more or less resistance and partial asphyxia.

In the method I have employed there is a cannula inserted into the trachea, with side opening with a rubber connection with a screw-clip for regulating depth of anesthesia. Next there is a side-tube which dips under oil or some such liquid which forms a liquid valve to allow outflow but prevent inflow. Next there is a tube that dips under the ether in the ether bottle and forms a liquid valve which allows inflow, but not outflow. During inspiration the air would flow through the liquid-ether valve, and into the lungs of the dog, whereas during expiration the ether-liquid valve would close and the expired air would flow out through the oil-liquid valve. This offers slight resistance and, in fact, the least resistance of any method that I have employed.

Dr. McGrath alluded to "the Meltzer insufflation method." I would ask whether he was under the impression that Dr. Meltzer originated the essential points in the method employed by Dr. McGrath? Some have maintained that Meltzer's name should not be used to designate the method.

DR. B. F. MCGRATH, Rochester, Minn.: In applying the name "Meltzer" to the method of insufflation, I did not have the question of priority in mind. To say the least, the investigations of Meltzer and Auer have added a stimulus to and amplified the application of this principle.

THE RELATION OF POLITICS TO THE STATE CARE OF CRIPPLED AND DEFORMED*

H. WINNETT ORR, M.D.
Superintendent and Assistant Surgeon Nebraska Orthopedic Hospital
LINCOLN, NEB.

It affords me much pleasure to read, in Minnesota, a paper on the relation of politics to the state care of the crippled and deformed, for it was the first of the United States to provide state care for these patients. The whole modern movement, which has for its motive the prevention of dependency, finds no better expression than along the line which aims to convert deformed or crippled children into independent and self-supporting persons. Many of the physical infirmities which these patients have are not susceptible of complete cure, but a considerable majority of all persons so affected may, by suitable surgical and mechanical treatment and by especially adapted methods of education, be rendered capable of self-support.

There are many reasons why the care and education of crippled children is naturally a state function. It has long been considered that the education and training of normal persons is a profitable thing for cities and states to do, but it is certain that a much larger proportion of those who are crippled become dependent if not made the object of special care. Economically therefore the state is simply using ordinary business foresight if by suitable hospital care and education these patients are treated and trained so as to become partially or wholly independent and self-supporting.

It has long been recognized that special institutions are necessary both for the hospital care of crippled children and for the education of those who are defective either physically or mentally. To me it has seemed for a long time that the combination into one institution of the hospital and school for crippled children is of special importance. We have found in the Nebraska Orthopedic Hospital that considerable progress educationally may be made by these patients while actually under treatment. Moreover, a continuation of their educational training and the selection of occupations for them is probably more successfully done under the supervision of those who have administered their hospital care and who have a full appreciation of the physical and mental needs and qualifications of these patients.

The question has frequently been raised in Nebraska and elsewhere as to the propriety of having the affairs of an institution of this character administered by politicians. After eight years of experience in a state institution, during which time our appropriations have been obtained directly from the state legislature, our affairs ordered by legislative committees, and administered by state officers, it may be well to give some public expression of the manner of origin and development of this important work.

In the Nebraska legislature of 1904 a few persons (not more than six or eight), including Mr. J. H. Casebeer, who was a member of the legislature at that time, prepared and had introduced a measure providing for an appropriation of $25,000 to establish and maintain for two years an institution for the hospital care and education of the crippled and deformed. This original bill was modeled after the Minnesota law, except that the institution was placed in the custody of the board of lands and buildings instead of under the regents of the university. The Nebraska bill contemplated, however, that as in Minnesota, the matter of the appointment of officers should be in the hands of a board rather than that it should be left to the governor alone. The Orthopedic Hospital was the first institution in Nebraska for which this provision was made. Practically every member of the legislature of 1904 was duly presented with arguments in favor of inaugurating this work, and eventually the bill passed both branches of the legislature practically without opposition except that the amount of the appropriation was reduced from $25,000 to $10,000. On the presentation of the bill to the governor for his signature, however, the question was raised as to the actual necessity for such an institution. Governor Mickey expressed the belief that the number of patients actually in need of such care in Nebraska must be very small. A comparative estimate based on the number of cripples in other localities led to the conclusion that there must be as many as twelve or fifteen hundred in Nebraska. The final argument which induced Governor Mickey to sign the bill, however, was the collection by Mr. John Davis, then secretary of the board of charities, of information regarding about seventy-five cripples who were at that time objects of public care at county poor-farms or otherwise. On this showing being made, Governor Mickey signed the bill and it became a law.

The Nebraska Orthopedic Hospital was opened for the reception of patients Oct. 1, 1905, and our first official biennium closed Nov. 30, 1906. During the fourteen months 108 patients had been received at the institution. The next legislature, before whom an accurate showing was made, not only of the work already accomplished, but of the patients then in the institution and of other candidates for admission for whom no facilities had been provided, responded at once with an emergency appropriation for immediate use and with a much larger appropriation for the succeeding biennium, the total amount being in the neighborhood of $50,000. Of this amount about $20,000 was spent in remodeling our building so that it became much more satisfactory for hospital purposes.

During a period comprising nearly four years, the experiment of caring for the crippled children of

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

Nebraska was actually worked out. Adequate provision was made for hospital care and for the beginning of our educational work. Much of the credit for what was accomplished during this time must be given to Mr. H. M. Eaton, chairman of the board of public lands and buildings, who had for many years prior to his election to this office been associated with the public and normal schools of this state. Mr. Eaton was, and has always been since, very enthusiastic in his support of this work. He was ably seconded in his efforts by Mr. A. Galusha and by Mr. Geo. C. Junkin, who were successively secretaries of state, Mr. Peter Mortensen and Mr. L. G. Brian, state treasurers, and Mr. Norris Brown, since United States senator from Nebraska, who was attorney general. Except for the intelligent sympathy and the enthusiasm of these men, the initial success and development of our institution would have been impossible even with the appropriations made for our work.

The legislature in 1909 by appropriating $40,000 made adequate provision for the maintenance of the institution for the next two years. No provision was made at that time, however, for any extension of our buildings, so that no considerable amount of expansion was possible. Since 1909, however, when we had an average number of patients of less than fifty, our growth has been very rapid. An appropriation of $90,000 in 1911 for the next two years and a total of $152,000 in 1913 by the legislature which has just adjourned affords some idea of the growing appreciation on the part of the members of the legislature of the work already accomplished and of its possibilities for the future.

The chairmen of the finance committees in both the senate and the house this year gave especially careful consideration to the requirements of our institution, especially Senator W. H. Reynolds, who made several personal visits to the institution and conducted an investigation into the affairs and requirements of the institution, the results of which were chiefly responsible for the appropriation of $45,000 for a new fire-proof building to be added to our equipment.

Mr. G. W. Potts, chairman of the finance committee in the house, was similarly disposed to make adequate provision for our needs and our improvements.

One of the principal matters before the legislature during this session was the passage of a law to establish and regulate the affairs of a new board of commissioners for state institutions. This new board was provided for by a constitutional amendment adopted by the people of the state about two years ago. In the present legislature legal provision was made for the organization, powers and duties of this new board. Gov. John H. Morehead has also carried out the intent of the law by the appointment of Ex-Gov. Silas A. Holcomb, Mr. Howard A. Kennedy and Mr. Henry Gerdes, so that a non-partisan board of commissioners is now at the head and in charge of all state institutions, including the Nebraska Orthopedic Hospital.

We now have at all times more than one hundred patients in the institution (this is the limit of our capacity), and with our new building under way our capacity will be about one hundred and sixty. Increasing provision has also been made for our educational work, the object being to provide training particularly along industrial lines. Most of our instruction is of the individual kind and for the past three years our school has been in operation for twelve months in the year.

The epidemic of infantile paralysis in Nebraska in 1909, which gave us nearly one thousand more crippled children, has been a determining factor in the development of our work. We estimate that there are at present in our state between two and three thousand children who could be benefited or entirely cured and their education greatly facilitated by the methods employed in the Nebraska Orthopedic Hospital.

From these figures it is easy to infer something as to the situation in other states. Minnesota, through Dr. Gillette, was doing fine work along this line before Nebraska began. New York had also already established an institution for the state care of crippled children. Massachusettes since that time has built and is operating a great educational plant for its cripples. In all of the other states, however, this field is practically undeveloped. A few states like New York, Illinois, Maryland, Pennsylvania and Maine are doing magnificent work through contributions of private philanthropists, with or without state assistance. There is great need, however, for the awakening of the public conscience with regard to these patients. We have become prodigal in our expenditures for the education and training of normal children, while those most in need of special care and training are allowed by reason of neglect to drift further into a state of dependency.

The point to which I wish to call particular attention is that in some states, perhaps in many, no special effort has been made in this direction because of the fact that those who are most interested have expressed themselves as unwilling to "mix in politics," as they express it, or to resort to political methods to secure the appropriations to establish these necessary special institutions.

The lesson we have learned in Nebraska is that our members of the legislature and our state officers have been our best friends; that they have been quick to appreciate the possibilities of this work as well as the needs of the patients and that without their sympathy and support in this, as in any other public work, success would have been absolutely impossible.

First National Bank Building.

ABSTRACT OF DISCUSSION

Dr. J. W. Cokenower, Des Moines, Iowa: I should like to add to the list of states that have made provision along this line the state of Iowa. Last winter I wrote to Dr. Arthur J. Gillette of St. Paul for a copy of the Minnesota law regarding the matter. I wanted to prepare a similar bill to present to the legislature of Iowa, and was supported by the State Board of Control. While I did not obtain so large an appropriation as I wanted, yet I obtained a small one which is in the hands of the State Board of Control, who are in touch with the cases in the state that need aid. I believe that at the next session of our legislature we shall be able to pass a bill providing for a state hospital for the care of these cases. I have been talking with some of the members present and find that there are two other states that are going to join us; so I think that state institutions for the care of crippled and deformed children have come to stay and that it will not be many years before nearly all states will have established hospitals for the care of indigent crippled and deformed children.

Dr. Emil S. Geist, Minneapolis: Minnesota is one of the first states in which this work was done, all through the efforts of Dr. Gillette. The buildings of the State Institute for Crippled and Deformed Children testify that the Minnesota legislature is good to these children. An additional grant of sixty thousand dollars has been allowed to enlarge our state institution, which, by the way, has been moved

from the St. Paul City Hospital to the environs of St. Paul, where open-air methods can be pursued more successfully.

DR. GILBERT L. BAILEY, Oak Park, Ill.: It has been my good fortune to go through the school for cripples at Munich, Bavaria, which is supported partly by voluntary contributions and partly by payments made by the different towns sending crippled children to it. A town sending a crippled child to this institution pays sixty dollars a year for the four or five years required to prepare the child for the work he is most capable of doing, and in the practical German method it has been found that this sixty dollars a year is trifling compared with the cost of letting the cripple grow up in ignorance to beg or become a public charge in an almshouse. This dollars-and-cents view may also impress our politicians and the public of the advisability of establishing such schools here.

One of the troubles in the existing schools is that the child is dropped too early. In Chicago we have the public grammar schools for crippled children, who are conveyed to and from school in busses at the public expense and receive as much of a primary education as they can take, after which they are left to shift for themselves. Without a special training for the arts, crafts or business, they rarely find employment on account of their physical handicaps and, therefore, lead the lives of mendicants, or objects of state or private charity. At relatively slight cost, schools could be established, like that in Munich, which would take the cripple at the age of 14 or thereabouts and in four or five years teach him one of the arts, crafts or business methods, which would make him a self-respecting member of society, instead of a helpless dependent on charity.

DR. JOHN JOSEPH NUTT, New York: I know about the work of interesting the politicians in these hospitals. This year we obtained an appropriation of sixty thousand dollars to put up new buildings and $32,500 for maintenance.

One point that will make it a little easier for anyone trying to induce the legislature to give money for the care of crippled children is a proposition that making such provision will be economical for the state in the end. There is little hope of being able to return feeble-minded children to their homes, the chances being that they will have to stay in institutions for the rest of their lives. It is different with the crippled children. They become useful citizens. The return to the state for its investment in the hospital is absolutely demonstrable. There is a great deal done in New York City in the way of special schools for crippled children. They receive, however, only such surgical care as is afforded in the dispensary or by a visiting physician and their home life is never suitable for one suffering with tuberculous arthritis. Continuous hospital treatment until cured, with scholastic and industrial training, is what we are offering at the New York State Hospital for Crippled and Deformed Children.

DR. JOHN PRENTISS LORD, Omaha, Neb.: Dr. Orr lives in the capital city, where the hospital is, and has taken pains to show these men the work that is being done there and to impress on them the need of it. Doctors are likely to have prejudiced ideas about legislators and their motives and the way in which they carry out their legislative functions. These men do the best they can, and it is largely a matter of determining the greatest needs in deciding the matter of the distribution of the money to the best advantage according to their way of thinking. It has been apparent that these men, on being shown this work and its necessity, have been most willing to cooperate with us. That is the secret of the whole thing. When doctors undertake to secure these appropriations, they ordinarily go to the capital with their demands and make their statements offhand, and any opposition is resented. If they would show the legislators the need of these appropriations, I think that it would be as easy to conclude the matter successfully in other states as it has been in our state through the efforts of Dr. Orr. That was all that was required to secure these increasing appropriations for this work, and I wish to acknowledge the credit that is due to Dr. Orr for the efforts he has made, largely single-handed, which have resulted in securing appropriations for the maintenance and upbuilding of the Nebraska State Orthopedic Hospital.

DR. ALBERT H. FREIBERG, Cincinnati: Some efforts have been made to establish a state hospital for the crippled and deformed in Ohio. I have heard nothing and seen nothing, thus far, to convince me that, as a general proposition, a state hospital is a good thing. It may be in some states, and possibly those states in which the greatest success has attended the efforts to secure it are the ones for which the plan is best adapted. My idea was to have a commission for the care of the crippled and deformed, and to have them treated in institutions already existing, instead of having each state build an institution for this particular purpose, taking children from one part of the state to another, in order that they might get the necessary treatment. I think that the question of schools is a different proposition altogether; but I doubt that it is right to have a school situated in one part of the state, and to take children to it from other parts of the state to be cared for.

Dr. Lord has not succeeded in convincing me of the ease with which these things can be obtained politically, because we have had evidence of rather strenuous attempts on the part of the doctors there to convince their legislators that orthopedic cases should be treated by men who know something about orthopedics. Indeed, they sought some evidence in regard to this necessity from us. My feeling is that, in the United States, as in Europe, there are men who busy themselves especially with these problems, and that it should be the duty of the state to take the children to these men; that a state commission should exist, to whom these persons should be brought, and that the commission should see that the children are placed where they can obtain proper treatment, without requiring them to be taken several hundred miles from their parents while they receive a long course of treatment and schooling, adapted to their particular crippled condition.

DR. H. WINNETT ORR, Lincoln, Neb.: Dr. Freiberg has put his finger on the sensitive spot, but I consider that his criticism is just and fair. My contention is, however, that a physician who wants to accomplish things along these lines must, on that account, familiarize himself with the methods that politicians use and adopt their methods, so far as is proper and right.

In regard to the matter of institutionalizing these children, I would say that this is a point raised by many members of the medical profession and others. I am in sympathy with this argument in dealing with normal children; but there are few cripples, especially those who have active disease also, who are not better off in institutions than they would be at home with their parents. The parents and the family physicians rarely do justice to these children; and a special institution, with a special staff and organization, and especially, special educational opportunities and facilities, is absolutely essential if we are to give these children a chance.

DR. A. J. GILLETTE, St. Paul, Minn.: This is a matter that ought to come before every single state in the Union in which there is not a hospital for orthopedic work in which the patients may be left as long as necessary. Another point is that it is a great deal easier to establish one of these institutions in a state than is supposed. I do not believe that there would be trouble in going to any legislature and getting some men interested in it, by teaching them what you mean by orthopedics and what you purpose to do. I should like to say that it would be all right to state in introducing a bill of this kind that the doctor is to receive no salary. It is right for him to have a salary later; but if you ask for a salary at first, you will have trouble in securing the passage of the bill. A good plan would be to limit the time during which the physician shall serve without a salary to the first five years.

DR. H. WINNETT ORR, Lincoln, Neb.: I should like to have Dr. Gillette discuss a question which Dr. Freiberg has raised by saying that he thought that it would be better to have the crippled children under the care of a commission in local

hospitals, wherever they happened to be, than to have them placed in a special institution.

DR. ARTHUR J. GILLETTE, St. Paul, Minn.: Judging from the conditions in Wisconsin, where I had something to do with getting an appropriation since I had a personal friend in that legislature, I should say that the scheme for the appointment of such a commission would be a failure. In that state, such an arrangement is almost an absolute failure. I think that these children should be placed togther in a hospital, to be taken care of by persons who are educated in caring for cases of this kind.

THE ORTHOPEDIC SURGERY OF FIFTY YEARS AGO WITH SOME REMINISCENCES AND CONCLUSIONS *

NEWTON M. SHAFFER, M.D.
NEW YORK

The present occasion is not only one which calls for congratulation and felicitation to those of us who have labored for years for the advancement of orthopedic surgery, but it may also be regarded as being, in some important respects, the semicentennial of the birth of this important branch of surgical science. It seems, therefore, a proper occasion to refer to the stirring events of fifty years ago which marked the strenuous activities of such men as Davis, Taylor, Sayre and Knight, whose genius and abilities have made possible the development of the orthopedic surgery of to-day, and whose contributions to surgery have, among other important events, resulted in the formation of this important Section of the American Medical Association.

Fifty years ago, May 1, 1863, the New York Hospital for the Relief of the Ruptured and Crippled, opened its doors for the treatment of patients at 97 Second Avenue, under the administration of Dr. James Knight, its founder. It so happened that I was present on that occasion—a humble, but paid officer of the institution, with stated dispensary and hospital duties—and was also the student of Dr. Knight. The opening of this hospital was a notable event in the history of the treatment of the deforming diseases of childhood. It has been followed by many other institutions of a similar nature during the past fifty years, but this was the first duly incorporated institution in this country devoted to this special object.

The establishment of this hospital, especially when coupled with the activities of Taylor and Sayre, made an epoch in the medical history of this country, and brought about a revolution in the treatment of deformities. The year 1863 was particularly prolific in events. Davis had given to the profession his traction apparatus for hip-joint disease, and other valuable appliances, and had formulated his views and principles. Taylor had introduced his ingenious and effectual "spinal assistant" and many other valuable and original devices, and had amplified, in many essential respects, the traction apparatus of Davis, giving us the first available portative traction hip-splint. Sayre brought his great abilities into play and promulgated several important and useful methods, including apparatus for club-foot, and the knee and ankle traction-splints which bear his name. These two men, both born leaders, earnest, energetic, and progressive, led the way. The discussions which attended and followed the development of these new ideas and methods were enlivened by spirited utterances and lively debates. But it all brought about a condition of affairs in which a much neglected branch of surgical endeavor received strenuous attention, and the original work of these pioneers, even at that time, was rewarded by eminent notice both at home and abroad.

The conservatism of Dr. Knight in 1863 and later in refusing to adopt these modern methods in the Hospital for the Ruptured and Crippled led, in 1866, to the establishment by Theodore Roosevelt, Senior, and Howard Potter, under Dr. Charles Fayette Taylor and Dr. John T. Metcalfe, of the New York Orthopedic Dispensary, which was afterwards enlarged and made a fully equipped hospital. Later on, in 1872, the methods pursued in the Orthopedic Hospital were, through the same influences, introduced into St. Luke's Hospital, and I was at that time appointed as orthopedic surgeon to this institution, the first appointment of its kind. Sayre, as professor of orthopedic surgery in Bellevue Hospital, was doing a yeoman's work in the early sixties and his clinics were the Mecca of many who were interested in these newly developed methods. These, and other more or less important events clustered about, and followed, the great events of fifty years or so ago, making this period the first stage of an evolution, the present stage of which would surprise these eminent founders if they could witness the great developments which have followed their teachings and efforts of half a century ago.

I spent five and one-half years under Dr. Knight in the Hospital for the Ruptured and Crippled—from May 1, 1863, to Nov. 1, 1868, being the first assistant resident-surgeon of the institution. I was an interested observer of the events which marked the beginning of my professional career, which commenced when I was but 17 years old. Faithful to my preceptor—a partisan, in effect—I, as a boy, looked with distrust on the new methods. But I experienced a shock of surprise and joy when in April, 1871, I was asked to become an assistant surgeon to the New York Orthopedic Dispensary, and saw the methods there used. Taylor's methods of diagnosis, his alert adaptation of mechanical means to pathologic ends, his great originality in devising apparatus for all kinds of deforming diseases and conditions; his quick appreciation and interpretation of symptoms, all this was a revelation. I became an active follower of Taylor and entered into the work before me with all the zeal I possessed, and soon acquired, or one might almost say inherited, some of the combative qualities which marked the men and their discussions of those early days.

At that time operative surgical work was not ignored, but, in the earnest interest of the moment, was relegated to the background. Sayre was as prominent as an operator as he was in advocacy of Davis' methods, and he rather disliked, I think, to be called an orthopedic surgeon. Those who followed Taylor's teaching were more interested in the development of the mechanical field, than in the operative. Taylor's private hospital and the Orthopedic Dispensary were perfected shops. The assistant surgeons did their own work, from measuring the patients for apparatus, making accurate drawings if necessary, to and including its final adjustment. Some of us would go into the shop and make with our own hands some of the simpler forms of apparatus; and a handy work-bench with tools, in the dispensary treatment room, was used by the assistants to make simple repairs and alterations. There were no trained nurses, nor any women attendants, except a sewing-woman, whose duty consisted in keeping in repair any worn-out leather work, and in sewing on bandages. The assistant surgeons were encouraged to develop new mechanical devices. The instrument makers were regarded as phar-

* Chairman's address before the section on Orthopedic Surgery of the American Medical Association at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

macists whose sole duty it was to prepare the mechanical prescription, as furnished by the surgeon. The instrument maker never came in contact with the patient, except, perhaps, when, with the apparatus applied to the patient, a verbal order was given him to make alterations which required shop facilities to produce. The adjustment of the spinal braces was all done by the assistant surgical staff, and the adhesive plasters for traction of the hip or knee were applied by them, as were the necessary bandages. The assistant surgeon was held directly responsible for the care of the patients assigned to him. It was interesting, thorough and arduous work. It was well done, and was orthopedic surgery distinctly, as compared with the work of the general surgeon. This was before the antiseptic method of Lister was introduced, but such operations as were indicated—all supplementing the mechanical work—were performed in the dispensary building, or at the patient's home, the after treatment being carried out at the residence of the patient. Several men—since eminent in this branch of surgery—became students of Taylor or Sayre, or both. These men learned orthopedic surgery. It was never a question as to whether a man was an operative surgeon. It was taken for granted that he could, and would, operate if necessary. He was there to learn new methods in diagnosis and treatment, and a year under Taylor and Sayre was a liberal education.

Later, in 1876, when Dr. Taylor resigned from the Orthopedic Hospital and I succeeded him as surgeon-in-chief, this hospital became a similar school of orthopedic surgery. There are some who have since become eminent orthopedic surgeons who honored me with their presence (a few are present now), who became my students and to whom I gave instruction. Without being invidious I may mention some of them—Ridlon, Gillette, Lovett, Myers, Packard, Fitzhugh, Young and Schapps; also the late Sidney Roberts and the late Samuel Ketch.

And there is another of my assistants and pupils, who shall be nameless, who yet deserves a passing notice.

I had been for nearly twenty-eight years an active officer of the New York Orthopedic Dispensary and Hospital, and for twenty-two years its surgeon-in-chief, when a crisis arose in hospital management involving the fundamental principles of control by the senior medical officer. I was then blessed and favored by an assistant who employed his peculiar talents in, at least, assisting in bringing about a condition of affairs which could only result in the sacrifice of this essential, indeed, vital principle, or the resignation of the surgeon-in-chief. The latter alternative was successfully accomplished.

Others of my younger associates and assistants who honored me with their confidence and were my pupils have drifted into general surgery since leaving the hospital, and being general surgeons have made orthopedic work a sort of kite-tail to their general work. All of these men, including those I have named, had a training which cannot be duplicated to-day, in the most important and essential part of orthopedic surgery, that is, the art and science of prescribing, applying and adjusting apparatus. It might be well if the future student of orthopedic surgery should spend at least a year in some properly equipped shop, just as the various colleges and universities demand of students in their engineering department a term of laboratory work in the course leading to the degree of C.E. The orthopedic surgeon should know more than his instrument maker. He should be able to devise the apparatus needed. He should be competent to direct its manufacture. He should know how to alter and adjust it to the conditions for which it was devised—in short, he should be able absolutely to control the situation. How many men practicing orthopedic surgery to-day fulfil these conditions? Not many!

And why? First of all comes the lack of facilities for proper preliminary education. Then again I am afraid that it is considered by some of our best-known men that mechanical work is *infra dig.* They are willing that the instrument maker should measure for, and after manufacturing it, adjust the apparatus to the patient. Another reason is that since the advent of aseptic surgery, operative measures have come to the front, and mechanical means have been relegated to the background. An important reason lies in the ever ready, often useful, but generally baneful, plaster-of-Paris bandage. I think it safe to say that 90 per cent. of the non-operative deformities of childhood can be more scientifically treated and more intelligently handled with properly constructed apparatus, than by the use of the gypsum bandage—and, I am sure, ultimately with much better results.

A cynic might say, in the present status of affairs—for an orthopedic surgeon must necessarily be an operative surgeon—that all that is needed to transform a general surgeon into an orthopedic surgeon is for the former to become an adept in the use of the plaster-of-Paris bandage. That this criticism can be made with some degree of justice, so far, at least, as the operative treatment of deformities is concerned, emphasizes the weak point of the present-day orthopedic surgery; that is, the lack among those practicing it of a thorough training in the thing which has been the most important formative influence in orthopedic surgery, which distinguishes it from general surgery, and which, if orthopedic surgery is to exist as a distinct branch in the future, must be cultivated and progressively developed—the intelligent and scientific use of apparatus. While this is all so—and this deficiency, which all must deplore, exists—nevertheless in the lines of the study, and investigation of the causes of the deforming diseases of childhood; in the way of devising operative and exceptionally mechanical measures for their relief; in the cause of the advancement of public philanthropic measures for the amelioration of this large and interesting class of sufferers, the orthopedic surgeon of America stands out prominently to-day in the scientific and humanitarian worlds.

Fraudulent Advertising by Physicians.—The secretary of the state board has received a lying advertisement from a paper from the southern part of the state, in which the advertising doctor promises, among other things, to cure appendicitis without the knife. Unfortunately this doctor is a licensed physician. The state board can do nothing with such cases unless it can be shown that the advertiser is guilty of "dishonorable conduct." While the promise to cure when one knows he cannot cure by the promised means is, in the physician's view, always dishonorable, this would scarcely be good evidence before a jury; and until such evidence can be secured the board can do nothing. The local prosecuting attorney should be consulted in all doubtful cases, and sometimes it is possible to convict on a charge of obtaining money under false pretenses. All quacks live on false advertising. Try moral and other suasion on the editors. Not all of them are pachyderms. Get the ads. out of the papers and the prosperity of the quack ceases.—Editorial *West Virginia Medical Journal.*

BACTERIAL INVASION OF BLOOD AND CEREBROSPINAL FLUID BY WAY OF LYMPH-NODES

FINDINGS IN LYMPH-NODES DRAINING THE PELVIS *

E. E. SOUTHARD, M.D.
Pathologist to the State Board of Insanity; Director of the Psychopathic Department of Boston State Hospital; Bullard Professor of Neuropathology, Harvard Medical School
AND
MYRTELLE M. CANAVAN, M.D.
Pathologist to the Boston State Hospital
BOSTON

The present communication is the fourth of a series dealing with a possible path of meningeal infection. The previous (or third) and second communications dealt with the bacterial invasion of the blood and cerebrospinal fluid in the light of findings, respectively, in the bronchial (fifty cases) and the retroperitoneal (thirty cases) lymph-nodes, and in the mesenteric (fifty cases) lymph-nodes. The second (or mesenteric lymph-nodes) communication developed an idea based on a previous paper by Gay and Southard[1] on the general significance of bacteria cultivated from the cadaver.

Our efforts have been directed at throwing light (so far as routine necropsy cultures might) on the curious fact observed by Gay and Southard that, whereas 41 per cent. of the bloods remained sterile with the methods used, on the other hand only 28 per cent. of the cerebrospinal fluids remained sterile.

Concerning the general problem we shall say no more than that the blood percentages obtained by Gay and Southard with insane hospital material compare well with those of other workers (mentioned in previous communications) with general hospital material, that our work has not necessarily anything to do with the general controversy between the "intravitalists" and the "postmortalists" as to the meaning of bacteria grown from the cadaver, and that there are no available data from other workers concerning our high positive percentages in the cerebrospinal fluid. The cerebrospinal fluid has been shown by Gay, and independently by McKenzie and Martin, normally to contain no bacteriolytic substances, whereas the blood is well known to contain such both in life and for some time after death.[1]

We were led to the obvious idea that bacteria from whatever source—infected lesion or some surface drained by lymph-nodes—might enter the blood, infect the meninges, die out in the blood, and persist in the cerebrospinal fluid. (Of course, it is also conceivable that organisms may in some way enter the cerebrospinal sheath from lymph-vessels without passing through the blood: the solution of the latter problem can hardly be by such statistical work as we now report.)

In point of fact, our cultivations from three loci (mesenteric lymph-node, blood and cerebrospinal fluid) gave the expected result that the most frequent positives in two out of three loci occurred precisely in the lymph-node-fluid combination. Fortunately for certain purposes, though unfortunately for others, our mesenteric gave positive results (with one or more organisms) from lymph-node comparative cultivations were made during a dysentery epidemic, which so enriched the flora with secondary invaders that actually 55 per cent. of the cases all three chosen loci[2] (mesenteric lymph-node, blood and cerebrospinal fluid).

We went on to study in similar comparative fashion the organisms cultivable from bronchial lymph-nodes, blood and cerebrospinal fluid.[3] The fluid persisted in leading both blood and lymph-nodes in percentages of positive cultivations. But, although the bronchial lymph-nodes led the blood in positives, yet the combination of positives in lymph-node and fluid was decidedly uncommon in this bronchial node investigation. Also only 35 per cent. of the cases yielded positives in all three loci (bronchial lymph-node, blood and cerebrospinal fluid). Accordingly we suspected that the bronchial lymph-nodes had somehow less to do with invasion of the cerebrospinal sheath than the mesenteric lymph-nodes.

We then resorted to cultivations from retroperitoneal lymph-nodes[3] against the other loci. In the latter small series (thirty cases) we actually found the lymph-nodes leading the cerebrospinal fluid as well as the blood in point of positives. Moreover, we found the retroperitoneal series resembling the mesenteric series in the preference among binary positive combinations displayed by the lymph-node-fluid combination.

The mesenteric lymph-node results, as hinted before, may have been essentially modified by the epidemic conditions in the summer of 1909 at the Danvers hospital. We felt that an investigation narrowed to lymph-nodes draining the pelvis would offer us special correlations with particular lesions and germ-bearing surfaces. Instead of general hospital conditions tending to swell and infect the mesenteric lymph-nodes, we should study special conditions tending to produce localized invasions.

Here perhaps it may be observed that we are taking sides rather with the intravitalist than with the postmortalist in respect to these invasions of various parts of the body by bacteria.

The results in our twenty-eight pelvic lymph-node cases are given in Table 1.

TABLE 1.—PELVIC LYMPH-NODE SERIES

Hrs. post mortem	No. of Cases	Percentages		
		Heart's Blood	Cereb. Fl.	P. L.-N.
0—2	1	0	0	100
2—4	0	0	0	0
4—6	2	100	50	50
6—12	7	85	42.5	85
12—24	13	61.5	76.9	69
24—48	2	100	50	100
48+	3	33	66	66

Fusing results in pelvic with those in retroperitoneal lymph-nodes the results are as given in Table 2.

TABLE 2.—PELVIC AND RETROPERITONEAL LYMPH-NODES

Hrs. post mortem	No. of cases	Percentages		
		Heart's Blood	Cereb. Fl.	L.-N.
0— 2	2	0	0	100
2— 4	0	0	0	0
4— 6	4	75	75	75
6—12	14	93	71	93
12—24	22	68	86	77
24—48	4	75	50	100
48+	5	40	60	60

* From the Laboratory of the Danvers State Hospital, being Danvers State Hospital Contributions No. 42, 1913, and a sequel to the same Contributions Nos. 18 and 8. This work has been aided by the Investigation Fund of the Massachusetts Board of Insanity and the Underhill Fund for Neurological Investigation, Harvard Medical School.

*Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

1. Gay and Southard: The Significance of Bacteria Cultivated from the Human Cadaver: a Study of 100 Cases of Mental Disease, with Blood and Cerebrospinal Fluid Cultures and Clinical and Histologic Correlations, Centralbl. f. Bakteriol., 1910, lv.

2. Southard and Canavan: Bacterial Invasion of the Blood and the Cerebrospinal Fluid by Way of Mesenteric Lymph-Nodes: a Study of Fifty Cases of Mental Disease, Danvers State Hospital Laboratory Papers, 1910, No. 8, Boston Med. and Surg. Jour., 1910, clxiii.

3. Southard and Canavan: Second Note on Bacterial Invasion of the Blood and the Cerebrospinal Fluid by Way of Lymph-Nodes: Findings in Bronchial and Retroperitoneal Lymph-Nodes, Danvers State Hospital Contributions, No. 18, 1912, Boston Med. and Surg. Jour., 1912, clxvii.

There are perhaps again no significant differences in the flora of these loci as cultivated post mortem. If the invasions are post mortem, the chances favor the hypothesis that the invasions occur early (say in the first few hours) after death.

The kinds of bacteria cultivated are shown in Table 3. As in former work, Chester's "Determinative Bacteriology," 1901, has been largely followed.

TABLE 3.—TWENTY-EIGHT NECROPSIED CASES

	Heart's Blood	Cereb. Sp. Fl.	P. L.-N.
Cocci:			
Streptococci-Micrococci	1	..	..
Albus	..	1	..
Others non-pigmented	3	5	1
Citreus	1	..	..
Others pigmented	2	..	1
Unidentified cocci	..	1	1
Bacteria:			
Hemorrhagic septicemia	1	2	1
Sanguinarium	..	..	1
Anthrax group:			
Anthracoides	3	4	2
Rugosum	..	..	..
Truncatum	1	3	1
Subtiliforme	1	1	..
Varicosum	2	..	..
Fermentationis	..	..	1
Bacilli:			
Coli group	2	..	4
Formosus group	1	..	1
Citreus	..	1	..
Pammelli	..	..	1
Bassonis	..	1	..
Antenniformis	..	..	1
Strassmanni	1	..	..
Sulphureus	1	..	..
Lesagei	..	..	1

Growths of some sort were obtained from the plates as in Table 4.

TABLE 4.—SOURCE OF GROWTHS

	Cases	Per Cent.
Heart's blood	19 in 28	68
Cerebrospinal fluid	18 in 25	72
Pelvic lymph-node	21 in 28	75
Growths from no region		2

Growths from one region and not from the other two:

	Cases
Heart's blood	0
Cerebrospinal fluid	2
Pelvic lymph-node	2

Growths from two regions and not from the third:

	Cases
Heart's blood and cerebrospinal fluid	3
Heart's blood and pelvic lymph-node	3
Cerebrospinal fluid and pelvic lymph-node	3
Growths from all three regions	10

It is interesting to note that these pelvic lymph-nodes, like the higher group of retroperitoneal lymph-nodes studied in the previous communication, are richer in positive cultivations than the cerebrospinal fluid. It is accordingly not unlikely that, as a general rule, the pelvic and retroperitoneal lymph-nodes are more likely to harbor micro-organisms than the mesenteric or the bronchial lymph-nodes.

Like the groups previously studied, the pelvic nodes persist in leading the heart's blood in percentage of positive cultures. This, we assume, is but natural not only because the lymph-nodes are nearer the usual sources of bacteria, but also because in the fluid blood organisms which reach it are readily killed.

No further example (like one in the retroperitoneal series, 1414) of a positive blood with other loci negative was found in the pelvic series.

Since all the binary combinations are equally productive of positive cultivations, no conclusion can be drawn as to preferences for the different loci.

Three cases yielded the same organism in all three loci:

CASE 1.—14679, Path. 1398, man aged 46, general paresis, with purulent prostatitis, showed *Bacterium anthracoides* in pure culture in pelvic (inguinal), mesenteric, bronchial lymph-nodes, in heart's blood and in cerebrospinal fluid.

CASE 2.—15255, Path. 1404, man aged 40, general paresis, with pulmonary tuberculosis, hypertrophied prostate and injected bladder, showed *Bacterium gallinarum* in bladder, pelvic lymph-node, blood and cerebrospinal fluid; *Bacillus formosus* in lymph-node along aorta; *Bacterium anthracoides* and unidentified cocci in pus from right ear, and unidentified cocci in other pelvic and in retroperitoneal lymph-nodes sixteen hours post mortem.

CASE 3.—14779, Path. 1413, male, aged 16, dementia praecox, with injection of prostate and bladder and death from typhoid fever and peritonitis, showed in urethra, pelvic, retroperitoneal and aortic lymph-nodes, heart, cerebrospinal fluid, *Bacterium sanguinarium*, in peritoneal fluid *Bacterium pallescens*, two hours post mortem.

The foregoing three and six other cases showed the same organism in pelvic lymph-nodes and in cerebrospinal fluid (nine cases).

CASE 4.—14656, 1385, woman aged 46, Huntington's chorea, *Bacterium anthracoides*, nine hours post mortem.

CASE 5.—15195, 1396, woman aged 51, organic dementia, cocci, sixteen hours post mortem (cocci also in decubitus).

CASE 6.—15495, 1397, woman aged 59, involution melancholia, *Bacterium anthracoides*, thirty-nine hours post mortem.

CASE 7.—15497, 1402, man aged 36, status epilepticus, *Micrococcus lactis*, twelve hours post mortem.

CASE 8.—12367, 1409, man aged 57, manic-depressive, *Bacterium truncatum*, eighteen hours post mortem.

CASE 9.—15577, 1416, woman aged 68, organic dementia, *Bacterium citreum*, nine hours post morten.

These findings raise the hypothesis of invasions (whether antemortem or postmortem is here of no account) of two loci often supposed to be closed from one another: a ready hypothesis might be that in the first three cases listed the blood served to spread the bacteria either mechanically or as a growth medium, and that in the last six, the blood, if ever invaded, had killed out its contained bacteria.

In connection with pelvic nodes, it becomes of interest to inquire whether or not acute or chronic pelvic lesions bear any relation to the bacteria cultivated from the nodes. As is not infrequent in insane hospital material, pelvic lesions were numerous. There were in fact but five cases, in which acute or chronic pelvic lesions can be safely excluded according to the necropsy protocols; these five cases yielded sterile pelvic lymph-nodes (1387, 1388, 1406, 1410, 1414), although other lymph-nodes and loci yielded various cultivations.

Of the twenty remaining cases, all but two had pelvic lesions of an acute appearance (four associated with chronic lesions); the remainder (1397 and 1415) have only chronic lesions. Only five of these twenty cases of pelvic lesion failed to show bacteria in pelvic lymph-nodes (1393, prostatic cysts, psoas abscess; 1395, acute cystitis; 1401, rectal injection (lesion?); 1407, acute cystitis (gastric carcinoma); and 1417, injection of bladder. As can be observed, at least three of these cases are to no marked degree diseased as to pelvis, if at all.

As to the general capacity of these loci to receive and care for the larger groups of bacteria (Chester following Migula), we find:

• Cocci: in lymph-node 5, cerebrospinal fluid 7, heart's blood 8.

Bacilli: in lymph-node 14, cerebrospinal fluid 10, heart's blood 11.

Bacteria: in lymph-node 4, cerebrospinal fluid 0, heart's blood 3.

SUMMARY AND REMARKS

1. This continuation of our former work shows that the cerebrospinal fluid (72 per cent.) still leads the

heart's blood (68 per cent.) in percentage of positive cultures (routine aerobic methods, post-mortem material).

2. Pelvic lymph-nodes (like mesenteric nodes in our former work) lead both blood and cerebrospinal fluid (75 per cent.).

3. This is possibly due to the great percentage of pelvic lesions in the present series (twenty out of twenty-five cases; fifteen of the twenty showing organisms in pelvic lymph-nodes).

4. It is still uncertain whether these findings indicate ante-mortem or post-mortem invasions. Of course an acute or chronic lesion may conceivably help the penetration of organisms from without.

5. If (as seems likely) the invasions are intravital or agonal, then it would appear that the pelvic lymph-nodes are accustomed to harboring many bacteria (compare the mesenteric lymph-nodes in an epidemic of dysentery[2]).

6. Whether this habit of receiving more organisms than other nodes induces any superiority on the part of these nodes in respect to their power of digestion, we cannot say. If so, a rationale for Fowler's drainage position (upper part of abdomen maintained higher than lower part), might be imagined. Such a rationale would be superior to saying that the pelvic peritoneum is a better filter than others or is differently constructed from peritoneum elsewhere.

7. The pelvis, often subject to acute and chronic disease in the insane, appears to supply its lymph-nodes with very numerous bacteria (both motile and non-motile and of many groups). Some of these are saprophytes, some doubtless pathogens: they are often found in the cerebrospinal fluid post mortem, even when absent (destroyed?) in the blood. The pelvis compares, under the random conditions studied, with the intestinal tract in its habit of supplying bacteria to regionary lymph-nodes; and perhaps the pelvis surpasses the intestinal tract, since the latter's lymph-nodes happened to be studied during an epidemic of intestinal disease which provided an excess of secondary invaders.

8. The hypothesis of a route of meningeal invasion by way of the blood receives added support from this work, although the possibility of more direct invasion must be considered.

ABSTRACT OF DISCUSSION

DR. H. E. ROBERTSON, Minneapolis: For many years the bacteriology of dead bodies has been the subject of a great deal of discussion, and considerable contempt has been thrown on attempts to isolate pathologic micro-organisms from the body after death and draw any conclusion in regard to their influence on the body before death. There are still some questions which we should like to have Dr. Southard settle for us. Are all kinds of bacteria continually entering the blood from the intestinal tract and continually being taken care of by the protective influences of the blood? This question might perhaps apply not only to the blood, but also to the lymph and the cerebrospinal fluid. What is meant by the agonal invasions of bacteria into the blood and the lymph-nodes? Have we any particular reason to believe that there is any more invasion into the blood and lymph-nodes during abnormal processes than continually during the normal life? Have there been any actual experiments to show whether or not bacteria do pass out into the fluid of the peritoneum, into the blood-vessels or into the lymph-streams after death?

DR. HENRY ALBERT, Iowa City, Iowa: Were examinations of the blood and cerebrospinal fluid made before death in those cases in which they were made at post-mortem? In what proportion of the cases was the dysentery bacillus found in the mesenteric lymph-nodes?

DR. E. E. SOUTHARD, Boston: I had thought from the early work that organisms were continually going through from the intestines into the blood and being continually killed there, and I was somewhat impressed with the work of McDonald concerning the probable infective condition of normal organs during life in most cases. When I found, however, how few cultivable organisms there were in my Boston series I began to wonder whether this was the case. Someone ought to endeavor to make a complete bacteriologic study of the dead body. I do not suppose that anyone has ever done that. Until that is done I do not see how the question of the continual supply of the blood with the bacteria can be settled, but I am of the opinion that it is a continual supply, perhaps from the lymph-nodes, but perhaps more often from the pelvis. Agonal invasions should be less common than non-agonal invasions on account of the well-known immobility of persons who are dead. Experimental work in this department should be done on various parts of the body. In fact, I have been tentatively doing some work in this direction in the pelvis, which I hope I may be able to bring evidence of at a future meeting. An elaborate report of a dysentery epidemic was published in the *Boston Medical and Surgical Journal* in 1910. A rather small number of dysentery bacilli were cultivated in that series. In a certain number of cases comparisons of the blood have been made, but the number is not large enough to warrant any statistical conclusions.

REPORT OF THE COMMITTEE ON THE TREATMENT OF PUERPERAL FEVER *

BARTON COOKE HIRST, M.D.
PHILADELPHIA

ROBERT L. DICKINSON, M.D.
BROOKLYN

JOSEPH B. DeLEE, M.D.
CHICAGO

At the last meeting of the American Medical Association held at Atlantic City, Dr. T. J. Watkins read a paper on the treatment of puerperal infection, advocating a non-interfering, expectant policy. In the discussion that followed, two widely divergent opinions were voiced. Some would immediately attack the uterus and empty it of its contents; others would wait for Nature to expel ovular remnants.

In proposing that a committee be appointed to investigate the subject, three purposes were kept in mind: (1) to obtain the opinions of authorities and of the profession at large, thus to learn what is the general teaching and practice of to-day; (2) to call general attention to the importance of the subject; (3) if possible, to formulate a course of procedure which would be generally applicable to the treatment of sepsis with retained ovular material.

It was decided to send a letter of inquiry to the profession. The questions reproduced herewith were sent out as follows: 400 letters to professors and assistant professors of obstetrics and gynecology in the United States and Canada; 200 to professors and assistant professors of surgery in the United States; 60 to professors of obstetrics and gynecology abroad—to England, Ireland, Scotland, Germany, France, the Netherlands, Russia and Italy. In addition, the first three questions were published in THE JOURNAL.

In all, 302 replies were received, of which 197 came from obstetricians and gynecologists, 53 from surgeons,

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

38 from foreign gynecologists and 14 from general practitioners who saw the questions in THE JOURNAL.

Following is a detailed classification of the replies. In advance it must be stated that although the questions were prepared with great care and made as direct as possible, so as to elicit an opinion that could be readily classified, still a certain amount of freedom was expected in answering, and we did not anticipate dogmatic unqualified statements. The results, on the whole, were good, since it was possible in nearly all instances to judge from the general tone of the answers what was the individual practice of the writer.

Question 1.—"A primipara with septic abortion at three months, fever two days, hemorrhage negligible, the ovum intact, retained. What would you do?"

This question was intended to cover that large class of cases in which the criminal abortionist has attempted to induce abortion in one way or the other and has succeeded only in infecting the uterus and its contents. by twelve of the writers this question was misunderstood, they holding that the ovum had been expelled intact. In later blanks issued, the word "retained" was added. It is probable that the words *in situ* would have been better, although only 4 per cent. did not grasp the exact meaning. We divided the replies into three groups: First, those who would clean out the uterus; second, those who would treat the uterus expectantly, only interfering when hemorrhage or other condition demanded; and third, those who would use mild disinfectant and expectant treatment, such as uterine douches and gauze packing.

TABLE 1.—ANSWERS TO QUESTION 1

	Clean Out	Expectant	Mild Disinfectant and Expectant
189 Obstetricians and gynecologists	139	32	18
51 Surgeons	42	4	5
37 European authorities	32	0	5
14 General practitioners	11	0	3

Question 2.—"A primipara with septic abortion at three months, fever two days, hemorrhage negligible, the fetus expelled, placenta retained. What would you do?"

The same division of the replies was made.

TABLE 2.—ANSWERS TO QUESTION 2

	Clean Out	Expectant	Mild Disinfectant and Expectant
197 Obstetricians and gynecologists	156	33	8
49 Surgeons	41	3	5
38 European authorities	33	2	3
13 General practitioners	10	0	3

Question 3.—"A primipara, fourth day after full-term delivery, positive evidence of uterine infection, no hemorrhage, retention of ovular remnants suspected. What would you do?"

This question was very carefully drawn, because it was the object of the committee to discover on how much, or how little, provocation the uterus was invaded after labor at term. Furthermore, in actual practice, it is very difficult to be certain that there are ovular remnants in the uterus.

TABLE 3.—ANSWERS TO QUESTION 3

	Clean Out	Expectant	Mild Disinfectant and Expectant
183 Obstetricians and gynecologists	136	34	13
52 Surgeons	36	4	12
38 European authorities	27	4	7
13 General practitioners	8	0	5

It will be noted that in general the treatment advocated for these three conditions is about the same by the individual operator; i. e., it is clean out or not in all three cases. The totals do not always tally because some men did not answer all the questions.

Question 4.—"If you (a) believe in active interference, (b) when do you do it?"

The committee wished further to know how urgent interference in septic cases was considered, and therefore propounded Question 4.

TABLE 4.—ANSWERS TO QUESTION 4

(A) ACTIVE INTERFERENCE

	At Once	Within 24 Hours	Later
154 Obstetricians and gynecologists	128	8	18
41 Surgeons	32	0	9
33 European authorities	24	7	0
9 General practitioners	6	0	3

(B) TIME OF INTERFERENCE

	Obstetricians and Gynecologists.	Surgeons	European Authorities	General Practitioners
Curet—dull	70	21	9	6
Curet—sharp	19	5	0	0
Curet—not named	24	7	10	0
Finger	127	33	34	0
Placenta forceps	96	22	14	0
Tampon	39	18	11	0

Very few operators specified one or the other method as an exclusive one. Nearly all would use the finger as a method of preference, the others as aids, or where it was impossible to insert the finger. A few specified that the finger was more dangerous than the curet.

Question 5.—"What do you do when hemorrhage complicates sepsis?"

The idea of this question was to learn how many men became more active in the treatment when hemorrhage was added to the indications for interference.

TABLE 5.—ANSWERS TO QUESTION 5

	Tampon	Douche	Curet	Finger	Medicines
Obstetricians and gynecologists	92	20	72	42	31
Surgeons	29	6	16	16	5
European authorities	15	4	7	8	3

From this maze of answers it was possible to elicit these facts: The majority of operators do not fear to pack a septic uterus. The majority believe in emptying the uterus fully to stop hemorrhage. Few use medicines as adjuvants and still fewer use them alone.

Question 6.—"If you believe in trusting to Nature when ovular remnants are retained, how long do you wait before operating?"

Those practitioners who trust Nature to throw off the retained material usually believe that it is more dangerous to interfere than to wait, and that active treatment of the uterus spreads the infection by breaking down Nature's barriers. We already learned what is done when hemorrhage complicates sepsis (Question 5)—we wished further to learn how long it was considered wise or safe to wait on Nature—how long a time was considered sufficient for Nature to put up an efficient barrier against the invading finger or curet. Unfortunately, these points could not be elicited from the answers.

TABLE 6.—ANSWERS TO QUESTION 6

	Wait 24 Hours	Wait 24 to 48 Hours	Wait Longer than 48 Hours
32 Obstetricians and gynecologists	4	7	21
4 Surgeons	0	1	3
2 European authorities	0	1	1

It seems, of those who were willing to wait, the majority felt safe in waiting two days or longer. One author stated that he waits two or three weeks.

Question 7.—"Do you try to distinguish between sapremic and bacteriemic states before operating? How do you do it?"

Not long since it was believed that if a hemolytic streptococcus were found in the uterus, local interference was very dangerous, since it would almost surely be followed by a bacteriemia, but that if only saprophytic organisms were found in the uterus local interference was safe. We wished to learn how many still believed it is possible to discover whether the germs in the uterus possessed invasive qualities or not, or that they were able in any way to differentiate a purely local infection with absorption of toxins (generally known as sapremia) from a general infection (generally known as bacteriemia).

TABLE 7.—ANSWERS TO QUESTION 7

	Try to Distinguish	Do Not Try to Distinguish	Depend on Uterine Cultures	Depend on Vaginal Cultures	Depend on Blood Cultures	Depend on Clinical Symptoms	Depend on Exploration
Obstetricians and gynecologists	80	79	40	21	28	42	3
Surgeons	16	27	11	0	4	11	0
European authorities	12	22	7	1	4	9	0

Only half of the writers believe a distinction practical. It must be admitted that European accoucheurs, in general, have better facilities for such differentiation than we do, yet with them twenty-two of thirty-four believe it is impractical.

Question 8.—"Do you make any distinction between the treatment of sepsis after abortion and that after full-term delivery?"

We might have gathered this information from a careful study of the answers to Questions 1, 2 and 3, but it was thought best to get the direct replies.

TABLE 8.—ANSWERS TO QUESTION 8

	Make Distinction	Do Not Make Any	More Active in Abortion	Less Active
Obstetricians and gynecologists	57	90	53	4
Surgeons	14	23	14	1
European authorities	9	22	9	0

The replies of those who made distinctions in the treatment of the two instances of sepsis are significant, the vast majority, fifty-three of fifty-seven, are for more active treatment in abortions. Some writers specified criminal abortion as an indication for immediate emptying and exploration of the uterus. Many would use the finger for full-term uteri, the curet for early abortions. Some would pack or douche the full-term uterus and use the curet in early pregnancy. One man wrote that he never invaded the uterus in sepsis after full term, but that he regretted it.

In the general remarks, twenty authors specifically stated that their practice is more expectant than formerly; one that he is more active locally than he used to be. Four state that active treatment sometimes kills the patient and two are frankly undecided as to the best course to pursue, and one acknowledges that he feels helpless in these cases. Twenty-four writers are inconsistent in their general remarks as compared with their replies to the questions, which may have been due to possible ambiguity of the latter. One writer believed that cultures from the urine would enable a diagnosis to be made of the nature of the infection.

It was not expected by the committee that definite and dogmatic answers would be returned to each question, but in this we were agreeably disappointed. It was possible in nearly all cases to determine the actual practice of the writer as to the matter at issue. What was impossible, however, was the proper evaluation of the opinions expressed. As may be seen, the replies came from obstetricians and gynecologists and surgeons holding teaching and hospital positions, from European authorities, and a very few from general practitioners. It may safely be said that the opinions are the best obtainable, yet opinions are of two kinds, resembling in this respect coins and bills. Coins have an intrinsic and a face value, bills only a face value, so also are opinions; and the ones we received are not exceptional, but it would have been a work of supererogation for us to try to separate and classify them. Two writers frankly told us that the opinions of the majority were of no value, but that light must come from the men at the top. In forming our conclusions, due weight was given to this point.

CONCLUSIONS

The majority of accoucheurs and surgeons clean out the septic uterus at once, but a not negligible minority believe that it is safe to trust the expulsion of the infected uterine contents to the powers of Nature, some assisting the same by mild measures such as antiseptic douches and packing. From this it is fair to infer that, in the majority of cases, it has been found safe to invade the infected uterus with finger and curet, and this is borne out by experience. There are, however, many cases in which the infection is of such a nature, or the resistance of the patient of so poor a quality, that the sudden introduction into the system of so large an amount of bacteria and toxins, as is always made by curettage, turns the scale against the patient. She cannot stand the inoculation with autogenous vaccines. The experience of the minority has proved that ovular remnants, even though infected in the uterus, do not create such dangerous conditions as we formerly believed, demanding instant removal, but that it is safe to wait for Nature to erect her own barriers against the progress of the infection, and that temporizing measures, or mildly stimulating ones, often suffice for cure. We all feel the need of some method by which it would be possible to distinguish benign from virulent bacteria living in the genitalia, but as yet no such method exists. When it does become possible, our practice will become more definite. At present one-half of the authorities do not try to make the distinction, holding it impractical. One point that was almost invariably emphasized was that after the uterus was once emptied it should not again be invaded by either finger or curet. Few would permit antiseptic douches. This is a very grateful change from the time when repeated curettages were performed on the puerperal uterus—a procedure which was as rational as curetting the throat in diphtheria. Another interesting fact that was developed is that quite generally the tampon is used to stop the bleeding in infected cases. Evidently there is not much fear of damming back the infection and permitting greater absorption.

ABSTRACT OF DISCUSSION

DR. E. E. MONTGOMERY, Philadelphia: The profession is indebted to Dr. DeLee for calling attention to the importance of this subject, on which there is the greatest variety of opinions. I must confess that, since my attention was called

to it. I have varied somewhat from the statement I made of my own conduct in the treatment of these conditions. It had been my custom in these cases, when I could recognize material undergoing decomposition within the uterus, to remove it. I prefer the gauze-wrapped finger to the curet, as the decomposing material can be as thoroughly removed and with less danger. The cavity is painted with the tincture of iodin and packed with iodoform gauze. The gauze affords advantage in separating the surfaces, favoring the formation of establishing a wall which closes the vessels and thus permits us to remove the putrid material. If the uterus is infected and the ovum still intact I have felt it wise to evacuate the uterine contents. I have had cases in my service at the Jefferson Hospital in which we have waited, and in one of them, when the abdomen was opened later, the entire uterus was covered with an exudate and the pelvis filled with dirty material which necessitated, in our judgment, removal of the uterus in order to give the patient a chance for recovery.

My experience with patients in the hospital—and we see many who have been treated by midwives and subsequently seen by our men of experience—is that it is almost an invariable rule to curet them, sometimes even a second time. This is because they are of a class which, if not relieved by immediate operation, are rushed off to another man, who feels that he must appear to be doing something and again curets. Invariably, I try to bring these patients into the hospital because there they are under control. Although a number have come in with a temperature of from 104 to 106 degrees it has been my rule not to subject them to any further operative treatment. I remember a recent case in which the patient entered with a temperature of 106 after a second curetting. I made no attempt to investigate the uterine cavity. By keeping the patient quiet and under palliative treatment the temperature was normal within a few days and she was able, at the end of ten days, to leave the hospital.

In my experience, although the patient may be suffering from active septic infection, it is unusual to find the streptococcus in the blood. Most frequently we find the blood-culture negative. This is particularly true when the infection involves the vessels, causing thrombus and phlebitis. While it is evident that the patient is suffering from infection the blood-culture is negative. This has been shown by some writers to be due to the fact that streptococcus lodges on the sides of the vein and is not carried into the blood-current.

DR. J. C. LITZENBERG, Minneapolis: I have as a guest at my home a country practitioner, and to that class of physician I give great honor. He said to me last night, "Why did Dr. Murphy emphasize so much his condemnation of the curet? Does anyone use the curet now?" That is pretty good, coming from the country practitioner. Speaking not of the puerperal uterus, full term, but of abortions, I think that every incomplete abortion should be completed by the obstetrician at once, but I am greatly impressed with the ideas of those who advocate the extreme conservative position. I make a distinction between the uterus at full term and the uterus in abortion. It has been my practice always to empty the uterus in abortion, but not immediately in septic abortion. I use gauze and wait. If the uterus is dilated enough so that the placental forceps can grasp any portion of the retained ovum I use the forceps, but not the finger or the curet. If there is no hemorrhage I do not pack; if there is, I do.

I am becoming more and more conservative in the treatment of these cases and I find that the more chance Nature has the more she will do for us.

DR. ROBERT T. FRANK, New York: The country practitioner may not use the curet, but I am quite sure, from what I have seen in New York, that the city practitioner uses it, and much too often. I have seen cases of what we generally term puerperal sepsis—the term to which Dr. Murphy objected and for which he wants to substitute a more definite pathologic term. I have seen three or four men of high standing in consultation over such a case and each of them interpret the condition in quite a different way. Therefore, it seems to me, just as Dr. Murphy and Dr. DeLee suggested, that so long as we are uncertain, so long as we cannot view the organs outside of the body, we should look for a method by which, even if we do make a mistake in interpreting the exact pathologic state, we shall do the least harm; and that, after all, is usually by the expectant treatment.

In abortions I believe that infection is often due to the hasty examination made by the general practitioner when the patient is bleeding and he fears that she will bleed too much. In the puerperal cases the greatest difficulty lies in our inability to rely on the statements of the attendant as to whether the entire placenta has been expelled. If we are sure that the placenta is outside of the uterus after labor, the further question of emptying the organ cannot arise.

DR. R. S. YARROS, Chicago: Not so very long ago every physician considered it his duty to empty at once the puerperal uterus if there was any suspicion of septic contents. That there were too many uteri curetted and that some of the results were bad, not only because of the use of the curet but because it was used carelessly and by inexperienced physicians, we all admit. It seems to me, however, that the present extreme fear of the curet in such cases is not justifiable since obstetricians in these days are being better trained in surgical work. Most cases in which we are called on to remove the product of conception are either clean, incomplete abortions or cases of sapremic infection, and in my experience I have for many years, after dilating the uterus thoroughly, emptied it with a medium-sized curet, irrigated with iodin solution and lightly packed with gauze with good results. It is a different thing in criminal abortion cases, in which there is more likely to be a streptococcus infection and in which the infection has probably gone beyond the uterus. Dr. DeLee and many of his followers believe that a slow emptying of the uterus, which is accomplished by packing, is the only right way of reaching such cases because of the good results that they have obtained, but I maintain that, in the proper hands, our method has just as good results and, in addition, the patient and the family are not kept in suspense about the outcome.

DR. J. B. DELEE, Chicago: Dr. Yarros seems to have taken the defensive most sharply of all those who have discussed the report, and therefore I may perhaps be permitted to reply to that particular onslaught. I will quote the experience of my associate and collaborator, Dr. Stowe of Chicago, whose experience was gained in the same institution with which Dr. Yarros is connected. Dr. Stowe had been taught that every septic case should be curetted and he carried out this idea when he came into the hospital. He noticed that all the patients died. So he left them alone and they all recovered.

In conclusion, I shall answer the questions in the circular myself. 1. In septic abortions I try to determine, from the history and symptoms, if there is any perforating injury of the uterus. In this case, the abdomen is opened at once; otherwise the uterus is lightly packed with iodized gauze. Next day the gauze is removed and, unless the cervix is fully dilated, the uterus is again packed for twenty-four hours. The uterus is then emptied by means of the ovum forceps and the finger. 2. The treatment is the same as No. 1. 3. After full term or near term labor the uterus is not invaded unless there is hemorrhage. The patient's shoulders are raised to favor drainage and hygienic treatment and good nursing are provided. 4. I do not believe in active interference at once. When I do empty the uterus, I remove large loose masses by means of the ovum forceps, locate small adherent pieces and separate them with the finger, and only exceptionally use the curet. 5. When hemorrhage complicates sepsis, I tampon the uterus, and repeat this again, or twice, if necessary. 6. In case the presence of ovular remnants is only suspected, I do not interfere. 7. I always try to distinguish between sapremic and septicemic states before operating, but have never felt sure in operating that I was not starting a fatal illness. 8. I make distinctions in the treatment of sepsis after abortion and that after full term or near term delivery. In septic abortions I feel much safer in invading the uterus with finger and ovum forceps, and in a few cases I use the curet—never after labor. I am growing more and more conservative in the treatment of sepsis, and am delaying the time of interference as much as possible, to give Nature time to erect a good barrier.

SOME NEW MINNESOTA LAWS ON TUBERCULOSIS *

P. M. HALL, M.D.
MINNEAPOLIS

The discovery of the tubercle bacillus has changed all of our definitions of the disease. The discovery of a specific cure may change many of our methods of control, or our attempts at control. Ultimate control is the aim of all new methods or measures. The last fight against the disease will be made by the public health workers of the world. Changes have occurred both in treatment and in administrative methods; but always there has been progress. The question of control, of prevention rather than cure, naturally appeals to the public health worker. Minnesota has had some legislation on tuberculosis. It has been defined as a contagious and infectious disease and made reportable. A state sanatorium was erected about five years ago. The legislature authorized the appointment of a state advisory commission for this institution. These are some of the things which have been done looking toward control. Two years ago the legislature passed a bill authorizing counties to issue bonds for the purpose of erecting tuberculosis sanatoriums. This, it was thought, would stimulate interest which would result in the erection of sanatoriums in various parts of the state. It failed of its purpose. At the last session, therefore, the legislature passed another county sanatorium bill with the entirely new feature of state aid added. The bill also carried with it an appropriation of $500,000 to make the measure effective.

Some of the features of the bill may be of general interest. It provides that any county or group of counties, through their boards of county commissioners, shall have the power, with the advice and approval of the advisory commission of the Minnesota Sanatorium for Consumptives, to establish and maintain sanatoriums for the treatment and care of persons affected with tuberculosis. These sanatoriums may be established by a majority vote of the commissioners of any one county or group of counties, whenever the cost of construction to be paid by the county or group of counties shall not exceed such a sum as may be raised by a tax levy of not to exceed one mill on the dollar of the taxable property of any such county or group of counties. Whenever the cost of construction shall exceed the amount that might be raised by a one-mill tax, then the two questions of (1) whether or not such sanatorium shall be established and (2) whether or not such bonds shall be issued to defray any county's portion of the cost thereof shall be submitted to the voters of such county, and the sanatorium shall not be established unless a majority of the voters of such county shall vote in favor of each of the two propositions submitted to them.

If the county commissioners of any county shall refuse to construct such a sanatorium, then, on a petition of not less than 5 per cent. of the freeholders of such county, such question shall be submitted to the voters, and if a majority of the voters of such county, voting thereon, shall vote in favor of constructing such a sanatorium, then such a sanatorium shall be erected. On the decision to establish and maintain a tuberculosis sanatorium, the county commissioners shall appoint a commission consisting of three members, at least one of whom shall be a licensed physician, and whose appointment, before becoming effective, shall be approved by the State Board of Health. Such county sanatorium commission shall have full charge and control of all moneys received for the credit of the tuberculosis sanatorium and have full charge and control of the location, establishing, and maintenance of any sanatorium. But no site shall be secured and buildings erected or equipped without the approval and consent of the Advisory Commission of the Minnesota Sanatorium for Consumptives. Before final action is taken the plans and specifications shall be submitted to the State Board of Health for approval.

The State Board of Control shall have full power and control over the construction and equipment of any such sanatorium. A county or group of counties desiring to erect a sanatorium shall through their boards of county commissioners appropriate one half the necessary funds and deposit the same with the state treasurer. The bill further provides that the amount contributed by the state shall not exceed $50,000 to any one county, and that no sanatorium shall be constructed of smaller capacity than twenty beds.

After their construction these sanatoriums shall be under the charge and control of the county sanatorium commission. Preference is to be given to the patient with an advanced case and to the resident of the local county, but no person is to be turned away for lack of means if there is an available bed for his care. In case there are no relatives who should be responsible for the care of the patient, the state will pay to the county treasurer of the particular county the sum of five dollars per week. In counties in which a contract has already been let, or in which a sanatorium has already been built, the state shall refund to the particular county a sum equal to five hundred dollars for each available bed. To carry out the provisions of the bill an appropriation of $500,000 was made.

Besides this county sanatorium bill the legislature passed a bill for the better control of tuberculosis. It requires the reporting of all cases of the disease by physicians. This is provided for in a former law. The law further says that it shall be unlawful for the authorities in charge of any penal or charitable institution to care for any person afflicted with tuberculosis in the same room or ward with other inmates. Another section provides that the health officer may report to the board of county commissioners any person afflicted with tuberculosis whom he considers a menace to his family or the public, and, on the approval of the board of county commissioners, the health officer shall have the power to remove such person and place him in a public hospital or sanatorium in which he shall remain until discharged by the superintendent of such institution. This is another way to protect the public by compulsion in case protection by education has failed. This wise law would be without effect unless some place were provided where the vicious consumptive could be restrained. This is met, however, in the provision by the state for county sanatoriums.

Another provision of this bill is that no teacher, pupil, or employee about a school building who is afflicted with tuberculosis shall remain in or about such building, without a certificate from the board of health, or an agent duly authorized by the board of health, that such person is in no sense a source of danger to others. It is a poor rule that does not work both ways, so teacher and pupil are treated alike under this act. It provides for the proper disinfection of the premises following death or removal and for placarding the premises with a warning notice to the public until this has been done. This is thought to be the first bill providing state aid in the construction of county sanatoriums. How well it is to work

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

out remains to be seen. The provision against the vicious consumptive is different than other laws in that it at least provides a place where the vicious individual may be restrained.

Pillsbury Building.

ABSTRACT OF DISCUSSION

DR. S. A. KNOPF, New York: I wish to take exception to a few points in Dr. Hall's paper. First of all, is tuberculosis a contagious or a communicable disease? In the law he cited it is called a contagious disease. Contagion comes from the Latin *contingere*, to touch. Is the mere touch of a tuberculous individual sufficient to transmit the disease? In New York we make a distinction between a contagious and a communicable disease, and I really believe that it is most unwise to classify tuberculosis with leprosy or small-pox, which are really contagious diseases. By calling tuberculosis contagious, we increase phthisiophobia, which is a disease in itself and productive of much harm and misery to the antituberculosis worker as well as to the patient. I hope that the law will be revised and that the word "contagious" will be replaced by the word "communicable." I hope that Dr. Hall will make a little more clear what he really means to do with the vicious consumptive. At the Riverside Hospital-Sanatorium, in which I am senior attending physician and into which we receive patients from all classes of society, some of them forced in, we occasionally find it difficult to restrain the refractory patient who does not wish to stay. The hospital is situated on an island and escapes are rare, but sometimes a patient will attempt to swim across. I should be most grateful to Dr. Hall if he would tell me what they do with the consumptive patient who voluntarily expectorates on the floor and who behaves badly in other ways, such as fighting with his fellow patients, using abusive language, etc. It was stated that disinfection should take place every time a patient dies. I should like to ask the speaker whether it would not also be a wise thing to inquire, once in a while, where and how the patient lives. I believe that we are neglecting that feature of prevention. It is well and good to disinfect after the patient has died; but sometimes consumptive patients live a long while and in the meantime have a chance to infect many apartments; hence, I believe that the disinfection of the domicile should be periodical and not only after removal at death. In the antituberculosis campaign we must always bear in mind that we are not to combat the tuberculous, but tuberculosis, which is a disease of the masses, and to combat it successfully we must have the combined action of a wise government, well-trained physicians and intelligent people—that is to say, the citizens at large.

DR. V. C. VAUGHAN, JR., Detroit.: There are three distinct types of tuberculous individuals with which we have to deal. The first is the advanced consumptive, who is a source of contagion to others, but is necessarily confined to bed; consequently, the area which is infected at any time is limited in extent. Persons of this class should, of course, be cared for in hospitals for the tuberculous. These hospitals should be state institutions located at some remote part of the state or the community in which the individual lives. Patients with advanced cases are glad to go to hospitals, provided that these hospitals are easy of access to their friends and relatives. This is a very important point, which evidently has been taken into consideration in connection with this law. The second type of case causes the greatest trouble — the moderately advanced tuberculous person who goes from place to place giving the infectious material and who continues to be a source of infection over a long period of years. These patients, of course, require sanatorium treatment; but it is impossible to build hospitals of sufficient extent to provide for them during the remainder of their lives. The hospital should be used as a training school for these patients. They should be taught there how to prevent the spread of infection to others and how to take care of themselves in institutions of this sort, and then they should be returned to their homes, and the public health authorities should demand that they follow the instructions which they have received. The third class, which we are finding more and more frequently, is made up of patients with incipient or early tuberculosis. These persons are not infectious; they never cough; they never will cough; and yet when the public-school teacher goes out from a sanatorium for tuberculosis to resume her vocation, she cannot find a position because she has been an inmate of a tuberculosis institution. This is a practical point and one arising constantly. In Detroit, I have even allowed such persons to refrain from reporting that they have been in institutions for the care of the tuberculous. The physician who will not allow anyone who has ever received treatment in an institution for tuberculosis to enter a family and perform certain household duties is partly to blame for this. That is going too far and is one of the things that keeps us from reporting all our cases.

DR. WALTER J. MARCLEY, Minneapolis: As a member of the State Tuberculosis Commission appointed by the Governor for the purpose of studying conditions and recommending legislation, I had something to do with the framing of these laws. In planning for institutions for the tuberculous we had in mind the need of popularizing the sanatorium treatment of the disease. We must remove what Dr. Knopf and others call "phthisiophobia" and teach the people that having tuberculosis is not so awful. We have felt that the clause in the law referred to providing for compulsory removal from the home should be administered very cautiously, but that its enforcement will be required in some rare instances. In Minnesota we wish to make these institutions, near the homes of the sick, attractive in every way so that patients will desire to go and remain as long as necessary. Furthermore, these sanatoriums will no doubt be — and they must be, if they are to meet the purposes for which they are intended — educational institutions in the communities in which they are established.

DR. J. N. HURTY, Indianapolis: It is well to view every question from every angle. A soldier, who was addicted to morphin and whisky, came to me and wanted relief. He told me that he had little care for his old age; that he could dissipate and plunge into all manner of excesses because the country would take care of him at the Soldiers' Home. I find that the miners prefer to have small-pox, if they can have only a mild attack, in order to have two weeks' vacation at the expense of the state. They like quarantine and court it. Are we not liable sometimes to take too much care of the afflicted and of the unfit? Are we not putting a premium on the very conditions we are combating? To what will this lead? Insanity is increasing in my state, in which we have five great institutions, costing a million dollars. It costs $2,000,000 annually to take care of our insane and other defectives. We must now build a sixth insane hospital. Are we to keep on building institutions and doing nothing to prevent disease?

In Indiana during the last decade we have prolonged the duration of life of the insane eight years through the practical application of hygiene. Thus by our kindness and mercy and charity we have put forty thousand years more of burden on the shoulders of the citizens of Indiana. It seems to me sometimes that we are only increasing charity conditions. There is much talk about an old-age pension. If we give these pensions indiscriminately, just because a person has reached the age of 65 or 70 years, I believe that we will be in danger of increasing dependency and immorality; but if we give an old-age pension to those who arrive at a certain age in a certain stage of health, without syphilis, and immorally acquired diseases, we will be taking a step in the direction of prevention.

DR. OTTO P. GEIER, Cincinnati: If quarantine against small-pox is worth while, quarantine and forcible detention against tuberculosis is certainly worth while, for it is a much more dangerous disease. Cincinnati has, I believe, as broad a program of prevention as any city. We have there the second highest death-rate from tuberculosis of any city in the country. Over a thousand people die every year in Cincinnati of tuberculosis. The Anti-Tuberculosis League has conducted an active campaign expending about twenty-five thousand dollars a year. We are building new additions to the Tubercu-

losis Hospital. We now have bed capacity for three hundred. We are building shacks and a detention ward. I want to emphasize the value of a detention ward. The superintendent of the hospital stated in his 1912 report that the forty thousand dollars expended last year on the tuberculosis problem was largely wasted because the average stay of the greater percentage of the patients was less than forty days. This percentage was made up of the riffraff of the town, the unemployed and unemployable, who were serious sources of infection when they went back to saloons and cheap tenement houses.

DR. C. HAMPSON JONES, Baltimore: A similar law was framed in Maryland two years ago, but our legislature did not see fit to pass it. It differed from the present law only in the point that we have a central government in the board — a commission appointed by the governor several years ago — in charge of all the hospitals. I think that it will be thought best always to have one doctor on the several boards managing hospitals. Forcible detention is oftentimes really a great necessity, but, as a rule, the number who go voluntarily to the hospital is so great that we need not bother about the others.

I think that one phase of our work is really wrong. The so-called incipient case is cared for by the state or by the local communities. While I should not like to prevent any early case of tuberculosis being cared for by the city and the state, yet I think that, inasmuch as the state and cities are working for the protection of the public, they ought to do that which is the greatest protection for the public, namely, segregate the tuberculous.

DR. L. S. B. ROBINSON, St. Paul: Dr. Knopf has asked the question, "How can we control unruly patients?" One method is illustrated by a case recently reported to me by one of our nurses. The patient was a man with a large family of children; he was careless regarding sputum, ugly and uncontrollable. He was permitted to become drunk and then arrested on a charge of disorderly conduct and committed by the judge for sixty days to the hospital, instead of to the workhouse. When he gets out he will be rearrested and recommitted unless he gives promise of behaving himself.

DR. S. A. KNOPF, New York: I believe that Dr. Jones is mistaken about the danger of the advanced case and the nondanger of the early case. The patient with the advanced case may, I grant, produce more tubercle bacilli, but he is usually confined to four walls or his apartment, while the patient with the early or moderately advanced case is the typical bacilli carrier and distributer. He expectorates countless bacilli, and, if he is careless, he is a much more dangerous person than the patient confined to his bed or room. Both classes of patients should be taken care of and rigorous precaution concerning their sputum should be insisted on. To allow patients to become drunk in order to control them might be a pleasing pastime, but it would be rather expensive to the community; New York would, I am sure, not wish to have the hospitals spend money that way. To be serious, let us rather try another method and make the hospitals for the advanced cases so attractive and treat the patients so well that they will be only too glad to remain within them. Let us make the institution for the advanced cases not a place of despair but a place of hope. To this end I would plead that all so-called hospitals for consumptives be called hospital-sanatoriums as I designated the institution on North Brother Island. It is called the Riverside Hospital-Sanatorium. Many patients have the idea that to go to a sanatorium means to get well — to go to the hospital means to die. The hospital-sanatorium should be built near the city so that the patients' friends can see them frequently. Let us treat the advanced cases with the utmost kindness and consideration; make them feel that the hospital-sanatorium is a true home, in which it is even pleasant to die, if they have to die, and there will be no difficulty in filling our hospital-sanatoriums for advanced cases.

DR. LISTON H. MONTGOMERY, Chicago: In certain instances of pulmonary tuberculosis a hereditary condition prevails, I believe, as well as a contagious or infectious element. Why use the word communicable? I think that this term is less understood by the laity, and given less value, than the term contagious; hence less reliance or less care will be used in taking precautionary measures to prevent the spread of the disease to others, than would be used if they were taught that the disease is contagious and infectious. Why do we disinfect and fumigate the premises of a patient who has died of tuberculosis, if contagion or infection is not present? Although I refer to tuberculosis as being hereditary in certain cases, I know that this is not the popular scientific view nowadays; but how are we going to get around the fact that a mother in an advanced stage of pulmonary tuberculosis gives birth to a child that lives perhaps a few weeks and is found at necropsy to have a well-marked tuberculosis? Call it predisposition in the child or susceptibility if you will, but to me it appears to be an undeniable fact that the disease was directly transmitted to the child from the mother; hence I have never been convinced that the disease is not hereditary. I do not wish, however, to be understood to say that it is always hereditary. Be this as it may, how is it that within the last few years we are drifting toward the science of eugenics?

DR. GUY L. KIEFER, Detroit: At first, when I talked to lay audiences about these diseases, I believed in calling them all communicable. Now I believe in calling them all contagious; as we go along in the belief that all of the diseases are spread by contact directly or indirectly (and you can make the term indirectly just as broad as you wish to), I believe that it is better to have one term. We ought not to try to mystify the people whom we are trying to educate by using different descriptive adjectives for the different diseases, so long as the result we are trying to attain is to some extent dependent on the adjective we use. In New York, Dr. Knopf says the adjective in the law is communicable; in Michigan, the adjective used in the law is infectious, and in Minnesota it is contagious. If we use the word contagious, the very fact that the disease is described as contagious teaches the people some of the things that we are preaching, that they must not come and stay in close contact with a tuberculous patient, that they must not sleep together, in short, that they must not do the things that will spread the disease, bring the disease to them, by contact. It seems to me contagious is a good word, and that it would be well to let it stand.

DR. S. A. KNOPF, New York: If we should not make any distinction, if everybody should be taught that tuberculosis is contagious and that they should avoid coming in contact with tuberculous patients, where are we going to draw the line? Where are we going to get nurses and the help needed in sanatoriums and hospitals? We may even have difficulty in getting doctors. To be liable to contract tuberculosis one must be strongly predisposed, on the one hand, and, on the other, constantly exposed to the inhalation or ingestion of the tubercle bacilli. There is enough phthisiophobia rampant now, and we would better teach that tuberculosis is not a highly contagious but only a communicable disease and that the honest consumptive is not a danger to his fellow men.

DR. J. W. TRASK, Washington, D. C.: I do not think that the statement that the fear acquired by many persons of contracting tuberculosis would make it difficult to get nurses or to otherwise care for the sick or convalescent is entirely in accordance with the facts. Little, if any, difficulty is found in securing nurses for other infectious diseases, even for the most dangerous contagious ones. For many years those interested in the campaign against tuberculosis have endeavored to create in the minds of the people a wholesome fear of and respect for the disease, believing that it was only through the development of this fear and respect that people could be brought to properly protect themselves from infection; that only by this means could proper precautions be secured in the average home; that fear of the disease was necessary to keep the sick from sleeping with the well, to cause a proper disposition of the sputum and also proper cleanliness of dishes used by the sick. This fear of tuberculosis is a thing that has intentionally been fostered for sometime and has undoubtedly been of great assistance. I believe it to be a necessity in the successful fight which civilized nations are waging

against the disease. If this fear at times creates hardship it is unfortunate, but must be expected. If the household in employing servants rejects all applicants who appear to have tuberculosis, an occasional injury may be done. If those working together in an office glance suspiciously at a coworker who has become emaciated and afflicted with a chronic cough, a hardship may occasionally be inflicted. In developing this necessary fear of the disease it is impossible that each person shall acquire just the right kind of fear and shall know just when to fear and when not to fear. To be effective the fear will usually need to be greater than that actually merited by the characteristics of the disease and its tendency to infect persons. The control of the disease will probably be much more readily accomplished with too great fear in the minds of the people than with too little fear.

DR. P. M. HALL, Minneapolis: We used the three words—contagious, infectious and communicable—in the same bill; thus we did away with the finer distinctions as to these various terms. I used the word contagious as a matter of convenience. My own belief regarding the vicious consumptive is that sanatoriums should be made so attractive that the patient will come voluntarily. Still, I believe that we should have the power to remove the vicious consumptive. We provide in the law for disinfection following death, and removal of the living patient from one place to another. If the patient dies in the place where he was taken sick, we disinfect that place. The large cities of the country to-day are taking care of the bulk of contagious diseases. The idea is to bring the sanatorium to the consumptive in order that he may be near his home. The question of state aid was suggested by the fact that many of the counties in the state are poor, and that the state could wisely spend money to combat this disease. We must get away from the idea that we are going to get rid of consumption on a cheap basis. It may cost a little more money to conduct a sanatorium of a hundred beds, proportionally, than one of 250 beds; something will have been gained in the way of education if the sanatorium is established in a county near at hand, where the people will learn from the institution that it is their duty to care for an infectious disease in their own immediate neighborhood. The consensus of opinion at present is that the death-rate from tuberculosis is decreased in proportion to the increase in number of beds. There is probably no city in the world that has done more effective work and with more definite, positive results, than the city of New York; and New York to-day has a proportionately larger available bed supply than any other city. In the state of Minnesota at present there are less than four hundred beds; and yet we have an annual death-rate of almost three thousand. Think of trying to meet these conditions with less than four hundred beds.

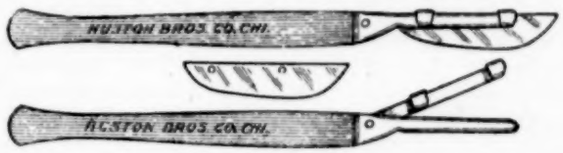
An advisory commission has definite supervisory control of all of these county sanatoriums. The idea was to place the management in a commission near at home; but the advisory commission has supervision of the county commission. Provision for the pay for free patients by the state is insured by the regulation that the state pay five dollars per week, in case the advisory commission certifies that the institution is properly operated and conducted.

An Inexpensive Efficient Sputum-Cup.—An inexpensive sputum-cup, to be used in an ordinary holder, may be made of ordinary white fiber manila paper, folded and dipped in hot paraffin, which, hardening immediately on exposure to the air, glues the overlapping edges and gives support to the box. Water heated to 100 F. will not penetrate a box made in this manner. Water at ordinary temperature will remain in them until it evaporates. Sputum-boxes may be made in this manner at a cost of 8 cents per hundred. The advantages of such sputum-boxes are: 1. They are inexpensive. 2. They afford employment for convalescing patients who make them. 3. Since they are white, the faintest tinge of blood is readily observed. 4. Paraffin being highly combustible, the destruction of any bacteria present is assured, when the used cups are burned.—ROBERT M. ALEXANDER, M.D., First Assistant Physician, State Asylum for Chronic Insane, Wernersville, Pa.

DETACHABLE SCALPEL BLADE*

J. A. MATLACK, M.D., LONGMONT, COLO.

In attempting to use safety-razor blades in surgical work I have found that a stock razor blade with a straight cutting edge is not practical. Such a blade if held in the usual position will have only the distal corner in contact with the flesh and will tear rather than cut, especially if used in the deeper parts of a wound. If the detachable razor blade is to



be adapted to the surgeon's scalpel the blades as ordinarily made cannot be used with entire success, but must be specially ground with a rounded extremity or "belly" as in the usual type of scalpel. The accompanying illustration shows the instrument as I have modified it to meet this requirement.

FRACTURE OF ANTERIOR SUPERIOR SPINE OF ILIUM FROM INDIRECT VIOLENCE

CHARLES AUER, M.D., BRONX, N. Y.
House Surgeon, Lincoln Hospital

The infrequency of this injury from indirect violence and the ease with which it may be overlooked, warrant a report of its occurrence.

On June 20, the patient, J. J., aged 23, took three steps forward, kicked violently at a football and missed it. He did not fall from the force of the kick, but immediately felt weak on his right side when he attempted to walk. After some manipulation of the leg by friends, he was able, by limping, to walk, and came by himself to the hospital, suffering little pain except on sharp forward flexure of the thigh. The family and previous history of the patient were negative. He was a laborer in a motor-vehicle shop, doing much heavy lifting.

On examination the patient appears to be a well-developed young man with powerful muscles. There is nothing remarkable in his physical condition except locally. On inspection, the skin over the anterior spine of the ilium is slightly depressed; about 3 inches below the injury there is a slight discoloration. On palpation over this site the fingers find a point of tenderness and crepitus. Crepitus is obtained also by extending and flexing the patient's thigh. The fragment may be indistinctly felt displaced about 1 inch downward and apparently attached to the anterior fibers of the tensor fasciae femoris.

The diagnosis was confirmed by roentgenoscopy.

With the thigh flexed and slightly abducted, the fragment was replaced and held by means of a broad band of adhesive plaster passed tightly around the pelvis.

Treatment of Boils.—I have used the following mixture in my practice for seven years:

	gm.	or c.c.	
Liq. potassii arsenitis	0	2	♏ iij
Liq. ferri peptonati cum mangano N. F., q. s. .....ad	5	0	ʒ j

This is a dose. Take after meals.

The taking of 8 ounces of the mixture has resulted in a prompt cure in every case, with no return of the boils.—LEROY E. CHAPMAN, M.D., Warren, Pa.

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* Previous references to this subject will be found in THE JOURNAL, Dec. 14, 1912, p. 2127; Dec. 28, 1912, p. 2325; Jan. 4, 1913, p. 67, and April 19, 1913, p. 1245.

The Blind Leading the Blind.—Teaching sex-hygiene by people who do not even know the definition of "sex" is about on a level with quack advertisements of cures for all ills.—*Buffalo Sanitary Bulletin.*

Therapeutics

TYPHOID FEVER

(*Continued from page 1459*)

IMMEDIATE TREATMENT OF SUSPECTED TYPHOID

The symptoms of such a patient are usually more or less diarrhea, loss of appetite, a coated tongue, more or less headache, and considerable fever. There may be backache, muscle pains and a slight cough or mild bronchitis, with perhaps a history of nose-bleed and of more or less malaise or debility lasting for the previous two or more weeks.

Such a patient should receive a cathartic immediately, and none is better than calomel in a dose considered sufficient, *not* in divided doses. The hospital method of giving 1/10 of a grain of calomel every half hour, or hour, for ten doses is ordinarily very bad treatment. The digestion is more or less disturbed, nausea is more likely to be caused, and fretty, troublesome diarrhea is more likely to occur than with a single properly estimated dose of calomel. The following method of giving calomel is one of the best:

		gm. or c.c.		
℞	Hydrargyri chloridi mitis ...	0.20	or	gr. iij
	Sodii bicarbonatis	1.0		gr. xv

M. et fac chartulam 1.
Sig.: Take at once.

It is best to give calomel either with a glass of milk or with a cup of tea or coffee, or with any other simple food, such as toast or crackers.

Castor oil administered by some more or less tasteless method will be as efficient as the calomel so far as the bowels are concerned, although the calomel perhaps washes out more of the old bile, and thus improves the condition of the liver.

While waiting for a positive diagnosis from the blood-test there is no reason why the patient should be uncomfortable from his high temperature or should suffer from his headache, and at this stage of uncertainty cold baths, spongings and even a trained nurse are entirely unnecessary, as many a patient shows these symptoms without typhoid fever being present. Therefore the following prescription is of value:

		gm. or c.c.		
℞	Acetphenetidini	1.50	or	gr. xx
	Sodii bicarbonatis	2.50		gr. xl

M. et fac chartulas 5.
Sig.: One powder every four hours, unless the headache ceases and the temperature becomes low.

Presumably but two or three of these powders, at most, will be taken on the first day; the other two may be taken on the following day, if needed.

If a small dose of acetanild, as 0.1 gm. (2 grains), is preferred to the preceding dose of phenacetin, it may be used in the same manner.

The patient should receive very little food for the first twenty-four or forty-eight hours, but plenty of water. The food might consist of coffee and tea, toast, some simple broth or malted milk, or a little milk.

Even before the diagnosis is made the stools must be cared for so that infection of others may not occur.

TREATMENT AFTER THE DIAGNOSIS HAS BEEN CONFIRMED

Typhoid fever being established, absolute bed rest, no matter how mild the case may be, should be insisted on. The best possible room for the illness should be selected. The nurse should be the best obtainable, as the disease is typically one in which good nursing is more essential as a preventive of infection of others and as a preventive of complications than any sanitary orders that may be given or any medicine that may be administered. Proper hygienic and sanitary measures should be immediately inaugurated, and the board of health notified of the disease.

In a disease that is primarily so distinctly intestinal as is typhoid fever, the diet and the care of the bowels are of paramount importance. The diet has been sufficiently discussed above. The care of the bowels has been subject to a great deal of discussion. The nearer surgical cleanliness is obtained in the intestine if typhoid ulcers are present the better will the patient do. If the bowels are properly moved there is less putrefactive substances in the intestine, there will be less bacteria and their toxins, less absorption of such toxins, and therefore less fever, less cerebral disturbance such as delirium and insomnia; there will be better nutrition, less liver disturbance, less likelihood of kidney disturbance, less likelihood of the colon bacillus migrating and adding its disturbances to that of the typhoid bacillus, less tympanites, or absence of tympanites if the management of the bowels is properly maintained, and with this absence of tympanites greatly diminished danger from hemorrhage and perforation, and less likelihood of cardiac failure. It should be reiterated that tympanites, once supposed to be a constant symptom of typhoid fever, is abnormal to it, if the diet is correct and the bowels are properly managed. And it is the tympanites that causes disturbed respiration, heart failure, such stretching of the intestines as to cause danger of tearing apart of the ulcerated tissues, and consequent hemorrhage; or the pressure may cause perforation through the base of an ulcer and consequent peritonitis; besides, the increased intestinal pressure promotes unnecessary absorption into the lymphatics and blood-vessels of the intestines. Tympanites is pernicious in typhoid fever, and if it occurs there has been some mistake in the orders of the physician or in the management by the nurse. Case after case of typhoid fever may be carried through its course from start to finish with a soft, flattened abdomen.

Any particular food selected that seems to cause tympanites or indigestion should be stopped, and some other nutriment substituted. The bowels should be moved daily by artificial means, and not as a diarrhea. Diarrhea should not be tolerated. The physician should cause the bowels to move, and then prevent fretty, frequent bowel movements. These, however, will often not occur if the bowels are daily properly moved. A good method of causing these movements (not the only method) is to administer a compound of aloin tablet every other night, with one of the feedings, so that it will not be taken on an empty stomach. A good combination is as follows:

		gm. or c.c.		
℞	Aloini	0.02		gr. 1/3
	Strychninae sulphatis	0.0015	or	gr. 1/40
	Pulveris ipecacuanhae	0.03		gr. 1/2
	Extracti belladonnae foliorum	0.006		gr. 1/10

M. et fac capsulam (or tabletam) 1.
Sig.: One capsule at night.

An active preparation of cascara may be substituted for the preceding, as 3, 4, 5 or 6 grains of the extract in a good tablet. Neither aloin nor cascara irritates or causes inflammation in the intestines, and the increased peristalsis that they cause is nothing like as severe as will be caused by the irritation of the intestine from imperfectly evacuated fecal matters. Of course, if the

intestines are allowed to become more or less paralyzed by prolonged tympanites, it may be at first difficult to start the bowels to move properly with simple laxatives.

After the bowels have moved once thoroughly or twice in ordinary amount, the patient should receive 1/10 grain of morphin. This will be sufficient to check the peristalsis and stop more movements for perhaps nearly twenty-four hours.

On the alternate day the patient should receive a rectal injection of an ounce of glycerin and an ounce of water. This will cause complete evacuation of the large intestine. If for any reason the bowels do not move on the day following the administration of the aloin, the glycerin enema may be given on that day.

The subject of bowel antiseptics is another one that has caused a great deal of discussion, and especially as to their value in typhoid fever. Dilute hydrochloric acid has been advised, not only because it aids digestion, but also because this physiologic acid increases the normal secretions of the intestines and makes digestion better, and while in the stomach it is of course an antiseptic. If the fever is severe and the patient is seriously ill, in all probability the hydrochloric acid in the stomach is not properly secreted. Certainly, a sour drink consisting of five drops of dilute hydrochloric acid in a wineglass of water, after the protein meals, may often be advisable. Iodin in small doses has been used, and various forms of creosote and other phenol preparations, but most of these seem inadvisable as all more or less tend to cause irritations, and the strong phenol preparations tend to irritate the kidneys.

One of the most satisfactory bowel antiseptics is phenyl salicylate (salol), because it is inert in the stomach and does not break up into its component parts (namely, salicylic acid and phenol) until it reaches the upper intestine. How far down the intestine such antiseptic action is active cannot be stated, but that it does some good there can be no question. Such activity may be demonstrated in all acute diarrhea attacks. It certainly prevents fermentation.

The dose of salol to be given in typhoid fever should be small, because it should be long continued. A capsule containing 0.20 gm. (3 grains) given once in six hours is sufficient, and of value. If albumin appears in the urine, the salol should be stopped.

Many times the administration of yeast, as above suggested, will not only act as a laxative, but will prevent fermentation in the intestines and sometimes clean a badly coated tongue. If yeast is given, salol should be stopped, as the two activities should not be combined, the salol being likely to inhibit the activity of the yeast fungus.

If for any reason the salol should be stopped, and perhaps always when convalescence is about to begin, or perhaps throughout the illness more or less constantly, hexamethylenamin (urotropin), on account of its antiseptic action during excretion by the kidneys, should be given perhaps in 0.30 gm. (5-grain) doses, dissolved in half a glass, or more, of water, and administered three times in twenty-four hours. It is quite probable that this drug may prevent typhoid bacilli from obtaining a harbor in the gall-bladder and in the kidneys, the two regions that are most likely to show typhoid bacilli long after convalescence, but recent investigations indicate that there is no reason to attribute to it antiseptic powers in cavities or tissues whose reaction is alkaline or neutral. It is rare that this drug causes any irritation of the kidneys or bladder, but, if it does the drug, of course, should be stopped.

The management of the temperature in typhoid fever is one of the most important problems. A continuous high temperature will surely waste the patient's body and vitality. Not only does the fat disappear and the skeletal muscles degenerate, but the vital organs of the body become impaired, and more especially a myocarditis develops with consequent impaired circulation.

Of course the best way to treat this high fever is to prevent it, and the diet and care of the bowels above outlined will and does very many times prevent high temperature. Good sleep and fresh, cool air, perhaps aided by an electric fan, and thin bed-coverings are of aid in lowering the temperature. A restless patient, suffering from more or less insomnia, will always have an increased temperature. No drugs to lower the temperature should be given after the first day or two. The only active measures advisable are hydrotherapeutic. The severity of the tub bath is inexcusable, and under any circumstances the measure could rarely be carried out properly in a private house. The value of other strenuous hydrotherapeutic measures is also questionable. In fact, even the value of ice sponging has probably been overestimated. Sponging with tepid water, or with water a few degrees below the body temperature, is probably generally as efficient as is cold sponging in reducing the temperature, if one takes the whole twenty-four-hour temperature into account and not the immediate drop. The discomfort caused by and the dread of ice-water sponging and the reaction that must occur almost discounts its good effects. Tepid sponging need not be used more frequently than once in six hours. Sponging with iced water every three hours if the temperature is above 101.5 or 102 is cruelty without equivalent results.

A coil on the abdomen through which is running iced water is often of value, and causes no distress or discomfort after the first hour or two. Iced or cold compresses to the abdomen are of advantage. They diminish the temperature and tone the circulation by causing contraction of the abdominal vessels, and increase peristalsis and cause evacuation of gas. But even this simple measure should not be used unless the temperature is above 102.5 at least, and perhaps only when it is above 103.

The value of the ice-cap is doubtful, unless there is actual meningitis. Prof. H. G. Barbour[3] showed that when cold was applied to the brains of rabbits the temperature was increased, while when heat was applied the temperature was depressed.

This physiologic finding is worthy of very careful clinical consideration. The ice-cap is generally a discomfort, and it probably seriously interferes with the nutrition of the hair, and is one of the causes of loss of hair after fever.

3. Barbour, H. G., Arch. exper. Path. u. Pharmakol., 1912, lxx, 1, and referred to editorially in THE JOURNAL, Feb. 15, 1913.

Multiple Pregnancies.—A Mexican exchange reviews the cases of multiple pregnancy on record, citing M. Baudouin to the effect that there are six known cases of a sextuple pregnancy (1904), and reporting further an authentic case in a Mexican town in 1911. Dr. N. Leon of the Morelos Hospital of Morelia, State of Michoacan, Yucatan, then reports that a creole woman of 27 in his town at her second pregnancy after an interval of nine years aborted and expelled twelve fetuses, labor and the puerperium being entirely normal. The family buried the fetuses, but they were dug up by the police and are now preserved in the museum; they measure 2 inches each. Leon was told that there was a single placenta for the whole.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, OCTOBER 25, 1913

THE CONVERSION OF CARBOHYDRATES INTO LACTIC ACID IN THE TISSUES

The average person consumes about a pound of carbohydrate a day in his diet. This is no small contribution to the body's transactions, and calls for reactions of considerable magnitude to convert this nutriment to its proper uses. Yet so accustomed are we to think of the foodstuffs as being "utilized" or "assimilated" or "converted" or "burned up" in some semimysterious fashion to meet the exigencies of every physiologic situation that few persons, even among those trained in the school of nutrition study, stop to consider precisely what the metabolism of each of our standard nutrients actually involves. What are the successive chemical transformations to which sugar, protein and fat are subjected prior to the elimination of their waste products? And the student of medicine will add to this query: What are the perversions which these reactions may experience under what is designated as pathologic disturbance?

That carbohydrates ordinarily leave the alimentary tract and enter the circulation in the form of relatively simple compounds—the hexoses or six-carbon sugars—is now generally accepted. The sugars of which glucose affords the most familiar type are preeminently the physiologically "available" or usable carbohydrates. Information as to what happens to them in the tissue laboratories has been sought by a variety of methods, each of which has been more or less fruitful. One may feed large quantities of carbohydrates to the normal or diabetic organism and search for fragments which have escaped complete transformation. Again, conjectured intermediate products may be furnished to the organism and their fate pursued. By this plan it has, at any rate, been demonstrated that the sugars are not directly burned up without further cleavage in the body; for such primary oxidation products as one might expect from the sugar are not readily used in the organism. They are represented by saccharic, mucic and oxalic acids, all of which act more like poisons than like normal stages in the combustion of our food sugars. The method of perfusing isolated organs with carbohydrates and searching for the products which arise, so to speak, at the seat of their formation has also been tried. But Drs. Levene and Meyer[1] of the Rockefeller Institute for Medical Research in New York have successfully employed a still different plan, that of studying the direct effect of tissue extracts or isolated tissues themselves on carbohydrates. Some time ago they demonstrated in this way that hexoses (such as glucose) can be dissociated by the action of leukocytes on them and in this manner converted into lactic acid. Much interest has centered in this evidence. Lactic acid has long been suspected to be an intermediate product in the metabolic transformations of carbohydrates. It is rapidly formed by the cleavage of the glucose molecule, and readily by the action of bacteria. Some French writers, notably Lépine,[2] have been inclined to attribute to leukocytes the function of sugar decomposition in the living organism. But Levene and Meyer have now shown further that the same conversion of various simple sugars—glucose, mannose, fructose—into lactic acid can be accomplished by different isolated tissues under aseptic conditions. All three of the hexoses enumerated yield the same lactic acid. These excellent researches make it more than probable, therefore, that this mechanism of lactic acid formation is identical in all tissues. They mark a long step toward a more intimate understanding of how the cells act.

RECENT WORK ON RABIES

Within a short time several articles giving important results of investigations on rabies have been published in this country. Brief reference may be made to some of these results, particularly those that bear on two great problems of rabies, namely, the mature and cultivation of its virus and the curative treatment of the active disease.

Heretofore investigators have availed themselves of the brain and spinal cord as sources of the rabic virus for various purposes; very little has been done with the virus as it exists in the salivary glands. Poor and Steinhardt[3] have succeeded in securing from the salivary glands of infected dogs virus free from the cells of the host and from contaminating organisms. They have made use of two methods for this purpose: (1) extraction of the glands with glycerin, and (2) subjection of the glands in distilled water to a vacuum of 29 inches of mercury for an hour, the fluid thus obtained, to which is added the juice pressed out of the aspirated glands, containing the virus after filtration through Berkefeld filters. No differences have been found between this virus, which is in what we may call a pure state, and the virus in the brain and spinal cord.[4] Microscopically the salivary virus as obtained by extraction or aspiration shows no definite, formed elements, only small granules, and the question of the Negri bodies and their relation to the virus confronts us. Poor and Steinhardt suggest

1. Levene, P. A., and Meyer, G. M.: The Action of Tissues on Hexoses, Jour. Biol. Chem., 1913, xv, 65.
2. Lépine, R.: Le diabète sucré, Paris, 1909.
3. Poor and Steinhardt: Jour. Infect. Dis., 1913, xii, 202.
4. Poor and Steinhardt: Jour. Infect. Dis., 1913, xiii, 203.

that possibly the chromatin elements in the Negri bodies represent the virus, the other parts being possibly products of reaction on part of the nervous tissue. As yet no announcement has been made of the successful cultivation of the salivary virus, which would seem to be a promising material for experiments. The survival of the virus in glycerin does not signify that it necessarily is of protozoan nature because, contrary to current statements, Poor and Steinhardt find that bacteria such as the diphtheria bacillus and the tubercle bacillus also survive glycerin treatment.

Noguchi,[3] Moon[4] and Williams[5] report the results of experiments in cultivating the virus of rabies as obtained from the nervous system. Noguchi announces that he has succeeded in growing various forms of virus which appears in the cultures as granular and pleomorphic chromatoid bodies, some of which are surrounded with membranes, and that he has reproduced the disease by inoculating animals with cultures. Williams raises the point whether the successful inoculation of animals may not have been due to the presence of the original material rather than to the results of active growth of a specific organism. No doubt this point will be settled definitely before long. Williams and Moon describe experiments in growing the organism of rabies outside the body in brain-tissue under various conditions, and both succeeded in producing rabies in animals with fourth or fifth generation or transfer of such cultures. Both investigators are inclined to believe that growth took place. The indications, then, are that before long the artificial propagation of the virus of rabies will have been accomplished satisfactorily. When that is done the relation of the Negri bodies to the disease and their nature as well as the nature of the organism itself and its relation to the seemingly invisible virus in Poor and Steinhardt's cell-free and bacteria-free salivary products undoubtedly will be made clear.[6]

While such fine progress is being made toward the solution of the problems of the nature and cultivation of the cause of rabies, the hope of finding a specific remedy for the disease naturally awakens. Perhaps a remedy already has been found! A short time ago Moon[7] reported that quinin sulphate by way of the stomach cured the active disease in inoculated dogs. And now Harris,[8] who has done important work on the use of frozen and dried virus in the preventive treatment of rabies, reports the recovery of a patient with rabies after injections of quinin. Unfortunately, the case is complicated with symptoms of alcoholic delirium, and at all events further trials are necessary to determine the value of quinin in rabies. The hopelessness of the prognosis of rabies warrants unreserved, thorough trial of quinin as promptly as possible. Cases of the disease occur every now and then in various parts of the country, and a long time should not elapse before we can learn whether or not the disease is amenable to quinin. Further and extended experimental work is indicated because the question may arise whether or not quinin given during the incubation period will prevent the disease. Just now the outlook in regard to rabies seems altogether hopeful.

3. Noguchi: Jour. Exper. Med., 1913, xvii, 29.
4. Moon: Jour. Infect. Dis., 1913, xiii, 232.
5. Williams, Anna Wessels: Cultivation of the Rabies Organism, p. 1509, this issue.
6. Concerning other work on the organism of rabies than that discussed here, see the letter by Paul Bartholow, p. 1555, this issue.
7. Moon: Jour. Infect. Dis., 1913, xiii, 165.
8. Harris, D. L.: A Clinical Report of Seven Cases of Hydrophobia, p. 1511, this issue.

SUGAR COMBUSTION IN PANCREATIC DIABETES

We have of late repeatedly referred to the problems of sugar metabolism in diabetes, because in ultimate analysis the rational therapy of this disease must be based on an exact knowledge of the reason for the waste of unused carbohydrate. The two prominent views at present entertained by students of the subject are quite at variance with each other. In so far as they apply to the type of diabetes supposedly involving a disturbed pancreatic function, both theories admit that the metabolic upset may be conditioned by the loss of some internal secretion of the pancreas. They differ in assuming in the one case that the combustion of carbohydrates fails completely when the pancreas is out of commission, and in the other that the capacity to burn sugars is by no means lost, but that there is rather an overproduction or excessive mobilization of carbohydrate which leads to hyperglycemia and subsequent glycosuria.

When Knowlton and Starling[1] succeeded last year in showing that the perfused isolated hearts of animals are no longer capable of using sugar in the normal manner after the pancreas has been extirpated from the subjects and they have become diabetic, it seemed as if a clear-cut answer to the debated question had at length been arrived at. Here was a striking demonstration of the inability of the muscle of the diabetic to burn sugar in the way that the normal heart muscle can. Furthermore it appeared to be possible to restore in some degree the metabolic power of the muscle toward carbohydrates by resorting to the addition of suitable extracts of pancreatic tissue (presumably containing the hypothetic pancreatic "hormone") to the heart-perfusion fluids.

The critics have not been content with this solution of the controversy. Even assuming that the diabetic heart has lost its capacity for utilizing carbohydrate, it does not necessarily follow, they properly remind us, that the entire diabetic organism behaves in the same defective way. Perhaps other organs of the body, like the liver, can still manage to use carbohydrate freely, as von Noorden[2] and his followers have lately taught. It became desirable, therefore, to investigate the metabolism of carbohydrate on the entire intact animal as well as on an isolated organ.

1. Knowlton, F. P., and Starling, E. H.: Jour. Physiol., 1912, xlv, 146.
2. Von Noorden, C.: Die Zuckerkrankheit, ed. 6, 1912, p. 162.

The administration of sugar to an animal is speedily followed by the preferential combustion of carbohydrate and manifests itself in a characteristic "respiratory quotient" or relation of carbon dioxid produced to oxygen absorbed. Unusual muscular activity must be excluded or taken into account, since this of itself may affect the quotient. Appropriate experiments can be carried out only in specially equipped nutrition laboratories; but the result—the fact of a high respiratory quotient after carbohydrate utilization—is readily interpreted by any one. The crucial experiments on the question here at issue have been conducted by Dr. Verzár and von Fejér[3] in Tangl's laboratory at Budapest. Their conclusion is clear-cut. When sugar is injected into depancreatized and therefore diabetic dogs the expected rise in the respiratory quotient indicative of carbohydrate combustion does not manifest itself. This is true, however, only when the diabetic condition has definitely established itself. Evidence of some unimpaired power of utilizing the sugar may still be obtained in the first few days after removal of the pancreas, but not at a subsequent period.

More recently Drs. Murlin and Kramer[4] of the Cornell University Medical School in New York City have confirmed the fundamental fact of the loss of ability to burn sugar in the case of depancreatized dogs. Neither extract of pancreas alone nor the double extract of pancreas and duodenal mucosa nor the transfusion of normal blood produced, within the time of maximal effect on the glycosuria, any effect on the respiratory quotient which could be interpreted as an index of increased combustion of carbohydrate.

It matters not that the Hungarian physiologists were unable to restore the metabolic efficiency of their depancreatized animals by transfusion of normal blood from healthy subjects or by infusion of various sorts of pancreatic extracts. The experiments tend definitely to confirm the important earlier conclusions of Knowlton and Starling,[5] and support the view that sugar is no longer satisfactorily used under the circumstances that obtain in such diabetic subjects.

THE RELATION OF THE LIVER TO DIFFERENT SUGARS

In recent years varied attempts have been made to apply the results of sugar feeding in the functional diagnosis of liver disease. In principle the process consists in administering a relatively large dose of some simple soluble carbohydrate such as glucose, levulose or galactose at one time and ascertaining by examination of the urine to what degree the sugar has been retained in the organism and presumably utilized. Trials of this sort on both man and animals have shown that the "assimilation limit" is reached with much smaller doses in the case of galactose than with the other sugars mentioned; and further, levulose is less readily utilized than glucose, the physiologic sugar. The practice here outlined rests on the theoretic assumption that these carbohydrates all are metabolized, either by conversion to glycogen or otherwise, in the liver, the organ to which they are immediately conducted when they leave the alimentary tract. Defective liver function should accordingly reveal itself by a limited capacity to utilize carbohydrates when they are furnished in great abundance at one time.

On the whole, the experience with these "functional tests" has been rather disappointing. Perhaps this can be in part explained by recent observations made in the medical clinic at Heidelberg.[1] The participation of the liver in nutritive functions can in good measure be excluded by surgical intervention in the form of the well-known Eck fistula, whereby the portal circulation is sidetracked from this organ and diverted directly into the general venous circulation of the vena cava. When this is done there is, according to Draudt,[1] no noteworthy difference in the utilization of glucose and levulose as compared with that in normal animals. The assimilation of lactose and galactose, on the other hand, tends to be markedly diminished. It seems logical to assume, in the absence of further evidence, that the liver occupies a place of special prominence in the utilization of the latter sugars. They need to be chemically "rearranged" before they can be converted into the typical storage carbohydrate glycogen; and apparently the liver retains the capacity for such more intricate chemical transformations in greater degree than do the other tissues. It follows therefore that galactosuria may be in large measure dependent on the extent to which the participation of the liver in metabolism is excluded and that this symptom may be taken as a measure of the diversion of the portal blood from its usual channels. Corresponding with these findings it has been noted that the sugar content of the blood of animals bearing an Eck fistula is increased when lactose or glucose is administered to them, though normally they show no tendency toward hyperglycemia. It is not unlikely, therefore, that renewed attention to the behavior of galactose in the organism under various conditions will repay those who are interested in functional tests of the sort described.

THE RIPENING OF FRUITS

The place which fruits are assuming in the dietary of man is one of growing importance. Certain species, like the apple and pear, the plum and the grape, have long enjoyed a deserved popularity; others which were once among the rarities in the United States are now

3. Verzár, F., and von Fejér, A.: Die Verbrennung von Traubenzucker im Pankreasdiabetes, Biochem. Ztschr., 1913, lIII, 140.

4. Murlin, J. R. and Kramer, B.: The Influence of Pancreatic and Duodenal Extracts on the Glycosuria and the Respiratory Metabolism of Depancreatized Dogs, Jour. Biol. Chem., 1913, xv, 365.

5. Criticisms offered by Macleod and Pearce of Western Reserve University (Centralbl. f. Physiol., xxvi, No. 26) have been taken into consideration by Verzár and von Fejér.

1. Draudt, L.: Ueber die Verwertung von Laktose und Galaktose nach partieller Leberausschaltung (Eckscbe Fistel), Arch. Exper. Path. u. Pharmakol., 1913., lxxii, 457.

finding wide-spread favor. This applies in particular to some of the forms of melons and to the fruits which are usually shipped by water from the tropical regions where they are grown to the centers of distribution. Bananas, which were found only in a few seaboard towns a generation ago, are now common in every region of America. In Great Britain, where they were little known less than two decades ago, they have now almost become the "poor man's fruit."

The ripening of fruits plays so important a part in their availability and in some of the problems of transportation that authentic information on this subject is much to be desired. Some fruits, like the apple, may be allowed to ripen almost fully on the tree and may be kept in the ripened condition for relatively long periods if proper attention is paid to their manipulation and storage. Other fruits, like the berries, cannot be kept in the ripe condition very long before deterioration and decay set in. In still other cases, as with the banana, the fruit may be picked and transported advantageously before the final ripening has begun; and this process can then be controlled in the market and home as the conditions demand.

The physical changes, like the variation in color of ripening fruits, are familiar, since they are evident to the senses; but these alterations are merely indicative of changes in the chemical make-up of the fruits under the conditions which determine ripening. Heat, moisture, air and light may all participate in determining the characteristic changes that ensue. Laboratory investigations in recent years[1] have given clearer indications of what takes place. Among the reactions easier to follow are the transformation of starch into sugar, the conversion of soluble tannin compounds with their astringent properties into insoluble forms, the actual lessening of the quantity of acid, or the masking of the acid flavor by the accumulation of sugar, the softening of woody tissue, and the increase and storage of water (juice). The formation of compounds, such as volatile ethers, organic oils, etc., responsible for special flavor and aroma is not so easy to follow.

One reason why ripening processes can so often proceed advantageously after removal of the fruit from its parent plant lies in the fact that many of the physical and chemical changes noted are carried out by unorganized ferments or enzymes. These are readily influenced by temperature, etc.; hence the importance of the latter in varying the speed at which the ripening proceeds. This may even continue so long as to carry the change to an undesirable point known as after-ripening, which is not ideal from the point of view of the consumer. During the ripening the fruits also undergo a sort of respiration in which oxygen is consumed and carbon dioxid produced. In this process part of the carbohydrate is oxidized and heat is generated.

With the growing knowledge of what the ripening of fruits really involves we are certain to acquire better criteria of what a properly ripened product should really be. The fact that unripened (winter) apples are unfit for consumption in the early fall because instead of sugar they have a large content of raw starch and other objectionable ingredients which disappear with the "mellowing" process, will be understood in a more intelligent way than has usually been the case. Furthermore, the facilitation or other regulation of the natural processes of ripening by artificial means will make it possible to dispel the limitations hitherto placed by seasons or distance. The beginnings are already apparent in the practices of modern commerce.

TEMPERATURE AND HUMIDITY IN HOSPITALS

Americans are inclined to pride themselves on the ingenuity they exhibit in the construction of public buildings and on the novelty and up-to-date character of the devices introduced. Plumbing and heating systems, elevators and telephones, lighting and cooking devices are pointed out in exemplification of the newest that the mechanic arts and skilful labor can provide. In our emphasis of the mechanism we are all too prone to overlook the man; for it is on the human brain that the successful working of all these varied arrangements ultimately depends. The only completely satisfactory automaton is the human individual.

These reflections are prompted by observations which Miss Lake has recorded in regard to the temperature and humidity in six New York hospitals.[1] There, if anywhere, one would expect the hygiene of heating and ventilation to be mastered in the highest degree. Yet the statistics gathered show that the control of temperature is more a question of management than of the system employed. In two hospitals, one with window ventilation and the other with a plenum system, a uniform temperature was regularly maintained despite the difference in the systems employed. Other institutions showed wide variations in temperature. One hospital was "consistently overheated"; for certainly we are not inclined to regard temperatures between 75 and 80 F. as desirable. Miss Lake points out the high temperatures in the children's wards and operating-rooms of almost all the hospitals investigated. In the case of the places for operation the reason is forthcoming; but whether temperatures between 70 and 80 should be maintained in children's wards is debatable. Certainly it is questionable whether a ward with a day record of 76 F. should be allowed to cool to 57 at night unless special precautions are taken for the protection of children who persist in sleeping uncovered. As a commentary on the wisdom of management in the placing and regulating of thermostats it may be noted that an operating-room with a temperature of 88 F. registered 98 F. on the thermo-

1. Langworthy, C. F., and Milner, R. D.: Some Results Obtained in Studying Ripening Bananas with the Respiration Calorimeter, Yearbook, U. S. Dept. Agric., 1912, p. 293.

1. Lake, Alice L.: Temperature and Humidity in Certain New York Hospitals, Jour. Home Economics, 1913, v, 301.

stat placed against a wall back of which were the steam-pipes of a sterilizer in an adjoining room.

Low humidity is a rule in hospitals and strikingly so in the operating-rooms. Of the seventy-five records taken by Miss Lake, sixty-seven were between 20 and 45 per cent. relative humidity. This is, of course, due to the high temperatures; for the outside humidity reaches far higher figures. It matters not whether this more humid outside air is brought in through windows and ducts or not; for the warming of the air to the high room-temperatures has a drying effect. Whether or not it is advantageous for patients in an operating-room or in the wards to be subjected to dry heat may be debatable. The only suitable way to alter the situation is to provide artificial humidification. As for the perversions of temperature and humidity, they appear to depend on the inefficiency of the man in charge rather than the system installed.

THE URINE IN NORMAL PREGNANCY

The important research by Murlin and Bailey[1] on the protein metabolism of normal pregnancy should serve to dispel some of the illusions current in regard to supposed perversions of nutrition frequently connected with the late period of gestation. Much attention has been centered in the past on the ammonia output in the urine of pregnant women. Inasmuch as high ammonia output, when correctly interpreted in relation to other findings, may indicate the existence of abnormal metabolic conditions, it is, to say the least, essential to have reliable statistics as to what is to be considered the normal and what constitutes a deviation therefrom. It happens that for the most part the data for the output of ammonia nitrogen in the urine have in the past been expressed in percentages of the total nitrogen excretion. This mode of presenting results of urinary analysis has obvious shortcomings; for if, as is commonly true, the absolute ammonia output remains fairly constant from day to day, the percentage output will nevertheless vary widely whenever the total nitrogen metabolism varies. For example, assuming the daily ammonia nitrogen excretion to be constant at 0.5 gm., the percentage output will be quite different under conditions in which the day's urine contains 5 or 15 gm., respectively, of nitrogen. Low excretion of nitrogen raises the percentage of ammonia output. The chemist appreciates these points well enough; but the clinician taught to respect the percentage figures and to see a menace to his patient when they are unduly high too often fails to realize that 10 or 12 per cent. of ammonia nitrogen may merely mean that the subject has eaten less, or stored more protein and therefore excreted less nitrogen waste.

Murlin and Bailey have found that in a perfectly normal pregnancy and puerperium the percentage of ammonia nitrogen in the urine before and after labor shows but slight differences and lies within normal limits (from 4 to 6 per cent.) except for one or two days following normal delivery, when it is slightly increased (from 7 to 10 per cent.). The ammonia nitrogen in perfectly normal pregnancies, in which the retention of nitrogen is large and the total nitrogen in the urine consequently small, may range as high as 12 per cent. of the total and be unaccompanied by any unfavorable symptoms. Immediately after severe catharsis it may reach the height of 17 per cent. because of the diminished absorption of nitrogenous food from the alimentary tract and consequently diminished excretion of total nitrogen. But the absolute amount varies only slightly from day to day and previous to delivery never exceeded 0.88 gm. in urine known to be uncontaminated. From this the Cornell investigators are inclined to look on any amount up to 0.012 gm. ammonia nitrogen per kilogram of body-weight in the twenty-four-hour urine as well within normal limits. It further appears that some of the instances of high ammonia output hitherto reported were in fact due to contamination of the bladder whereby ammonia arose in the urine itself as the result of microbial changes. In such cases irrigation of the bladder twice a day with a saturated solution of boric acid caused prompt reduction in the ammonia figures, the food and total nitrogen remaining the same.

So much has been asserted in the past regarding supposed deviations from the normal in this period, so much emphasis has been placed on the dangers prognosticated by a high ammonia percentage, that it is a satisfaction to learn the conclusion reached by Murlin and Bailey. In general, they believe that peculiarities in the composition of the urine of normal pregnancy as regards its nitrogenous constituents may be accounted for on purely physiologic grounds.

1. Murlin, J. R., and Bailey, H. C. Further Observations on the Protein Metabolism of Normal Pregnancy, Arch. Int. Med., September, 1913, p. 288.

Current Comment

CLEAN HANDS

The assertion is sometimes made that it is alone the "filthy habits" of the typhoid carrier that make him a public danger. If he could be made to wash his hands, it is alleged, transference of infection would be prevented. Those who regard bacterial cleanliness as simply a matter of careful hand-washing are likely to obtain disappointing results if a recent experiment performed by Cummins[1] is at all indicative of what may occur under ordinary conditions of life. This observer, after dipping the right index-finger in the urine (proved to contain upward of 3,000 million typhoid bacilli per cubic centimeter) of a typhoid carrier, proceeded to carry out measures of cleansing as follows:

1. Rinsed in liquor cresolis compositus solution (approximately 2 per cent.). 2. Then held the finger under the tap, rinsing first in cold, then in very hot water (temperature not

1. Cummins: Jour. Roy. Army Med. Corps, 1913, xx, 657.

recorded). 3. Washed very carefully in about 0.5 c.c. of sterile water in a watch-glass, and plated the whole of the water used for this purpose. Result: Three hundred and thirteen colonies of *Bacillus typhosus* on the plate. 4. After the washing in sterile water mentioned, the tip of the finger was thoroughly soaked in absolute alcohol, allowed to dry, and the washing in sterile water repeated. The "washings" were again "plated." Result: Four colonies of *B. typhosus*.

Even when the fingers are thoroughly rubbed with a towel and the danger of finger infection thereby lessened, it is obvious that the towel in its turn may become infected. The sort of accident that may follow from such conditions is illustrated by another observation of the same author:

On Sept. 26, 1912, 100 c.c. of soup freshly prepared from the "stock pot" was placed in a china bowl, no attempt being made to sterilize the bowl or to cover it from the air. The tip of the experimenter's right index-finger was allowed to come in contact with the urine of Carrier A (proved by plating to contain upward of 3,000 million of the *B. typhosus* per cubic centimeter). The china bowl was then lifted in such a manner that the infected finger came in contact for a moment with the contained soup. The soup was left at room temperature with free access of air and dust to the open bowl. On September 27, enumerated the bacterial contents of the "soup." Result: *B. typhosus* was present apparently in pure culture, numbering 15,500 per cubic centimeter.

Such facts as these add strength to the agitation for better supervision over the conditions of those persons engaged in serving and preparing food for large numbers of people. The action of the Pennsylvania Railroad in providing for the systematic inspection of all of its employees in the restaurant and dining-car systems has already been noted.[2] This example should be followed by the management of other organizations engaged in the handling and serving of food on a large scale. Social clubs and similar bodies, as pointed out by a correspondent recently,[3] are often lax in this regard. The supervision of cooks and waiters in dining-cars, hotels, restaurants and clubs is certainly a matter that deserves more attention than it has yet received. "Defective plumbing" is far less important.

POSTGRADUATE MEDICAL EDUCATION IN THE UNITED STATES

Last week there appeared the announcement[4] of some postgraduate courses to be offered under a joint arrangement by several educational and research institutions in New York City. It is not the mere fact that more postgraduate courses are being offered that deserves comment, but that several institutions having such courses to offer have seen fit to unite in having those courses given under a single control to the mutual advantage of both teacher and learner. It would eventually be to the advantage of all concerned if all the various postgraduate courses now being offered in our medical centers could be brought under a centralized control. As the courses are given at present, the graduate student has much difficulty in finding out from the multiplicity of agencies just what courses are available; he perhaps spends still more time in locating the courses desired and then often finds to his disappointment that several of the courses he has selected conflict so seriously that he cannot take them without spending much more time than he feels he can spare from his practice. Under the centralized administration there would be one place where the student could secure full information regarding all courses offered; one circular could be issued describing all courses; the courses could be so arranged as to avoid conflicts between related courses; the present confusion and conflict would give way to system and order; much duplication of expense could be avoided, and—most important—a greater number of physicians would be attracted to the courses. There is probably as great an abundance of clinical material in several of the large cities in this country as is to be found in the continental cities of Europe, and doubtless some of the courses offered are as excellent or even superior. The great need, however, in each of our large cities is for the centralized control which is essential for the best development of those courses. Harvard, with its new Graduate School of Medicine, has made an excellent start by forming a close affiliation with many of the hospitals of Boston. And now several institutions of New York are giving these postgraduate courses under a unified administration. This will surely render the courses more attractive and valuable to physicians, and a greater number of physicians will take the work to the mutual benefit of themselves and of their patients.

THE MECHANISM OF VOMITING

Vomiting is regarded by many merely as a sort of antiperistalsis of the stomach and esophagus. There is evidence, however, that phenomena characteristic of emesis can follow even after removal of the entire gastrointestinal tract, when emetic substances like the digitalis compounds are administered intravenously.[1] The part played by the digestive tube in the act of vomiting has been further elucidated by roentgenologic observations on the movements of the alimentary tract after administration of apomorphin.[2] In dogs the process of vomiting exhibits three distinct phases: First, the pyloric portion of the stomach contracts and fills the relaxed fundus with contents; then, as the cardia opens, food materials are projected through it into the esophagus by the contractions of the diaphragm and the abdominal muscles; finally, after varying intervals of rest, the esophageal contents are forced to the exterior by expiratory movements. During their sojourn in the esophagus the food particles are propelled up and down therein by the characteristic respiratory activities. The cardiac sphincter frequently remains open and the gullet is relaxed. It should be emphasized that at no time was antiperistalsis of the stomach or esophagus observed in Hesse's experience. The act of vomiting is not always a completed process; frequently the gastric contents are

2. Thrush, M. Clayton: The Value of Sanitation as Applied to Railway and Other Large Corporations, THE JOURNAL A. M. A., Oct. 4, 1913, p. 1286.
3. Healthy Employees in Kitchen and Dining-Room, Correspondence, THE JOURNAL A. M. A., May 10, 1913, p. 1479.
4. Postgraduate Work in Medical Science, THE JOURNAL A. M. A., Oct. 18, 1913, p. 1479.

1. Cf. Eggleston, C. and Hatcher, R. A.: The Emetic Action of the Digitalis Bodies, Jour. Pharmacol. and Exper. Therap., November, 1912; THE JOURNAL A. M. A., Feb. 15, 1913, p. 499. Eggleston, C.: Clinical Observations on the Emetic Action of Digitalis, THE JOURNAL A. M. A., Sept. 6, 1913, p. 757.
2. Hesse, O.: Zur Kenntnis des Brechaktes, Arch. ges. Physiol (Pflüger's), 1913, cliii, 1.

moved into the esophagus but not conveyed to the exterior. Even when typical emesis occurs, the gullet is rarely emptied entirely. The residual débris glides back to the cardia, where it may remain for some time and finally be returned to the stomach itself. Thus the evidence is accumulating to show the participation of non-alimentary muscles in the act of vomiting; and in place of the supposed dominant importance of purely local stimuli in the gastro-intestinal canal the significance of the vomiting center in the medulla, from which large groups of contributing factors can be controlled through nervous channels, is assuming a conspicuous place.

THE NARCOTIC ACTION OF MAGNESIUM SALTS

The now widely familiar method of inducing narcosis by the subcutaneous injection of magnesium sulphate (Epsom salt), introduced some years ago by Meltzer and Auer, is capable of producing a profound depression of the animal organism. If the proper dosage is employed all reflexes and signs of sensibility are lost for a time, while respiration remains intact. It has been urged against the procedure as an anesthetic device that the magnesium salts merely paralyze, and that sensation is by no means lost. Indeed, the action has been compared directly with that of the classic poison curare, in its familiar manifestation of paralyzing the motor-nerve endings. Meltzer and Auer[1] have now brought new evidence that magnesium salts affect also the central nervous system. They have found that when experimental animals receive one-half or less of the effective narcotic dose of magnesium sulphate they are readily narcotized deeply by inhalation of small doses of ether which are of themselves insufficient to narcotize normal animals. If the magnesium had only a peripheral effect, which is asserted by those who hold that it merely paralyzes the motor-nerve endings, it is highly unlikely that there could have been a summation such as just described with the subminimum central effect of the ether. In the absence of more compelling evidence, therefore, the condition of depression induced by magnesium may still be regarded as one of anesthesia in which there is an inhibition of the entire nervous system, not alone its peripheral branches.

A CLEAN RECORD IN THE CANAL ZONE

Those who have been following the remarkable record of the work of sanitation of the Isthmian canal, and have watched the gradual reduction of the death-rate and the elimination of preventable disease, have hoped that before the monumental work of constructing the canal was finished it might be possible for Colonel Gorgas to present a report that would be clean as far as death from disease was concerned. The report of the Department of Sanitation for the month of August, 1913, just received, shows that during that month there were thirty-nine deaths from all causes among the employees of the canal commissioners. Of these, one, a Peruvian, died of malaria; another, a Spaniard, of alcoholism, and the third, a Greek, of appendicitis. The only deaths among white Americans which occurred during the month were two from violence, one due to an accident on the railway and the other to an accident in the quarry. Among the 12,481 white American men, women and children on the Isthmus connected with the commission—that is, employees and their families—not a single death from disease occurred. The exodus from the Canal Zone has already begun; those employees whose work has been completed are returning to the United States with their families. The number of the American citizens resident in the Canal Zone will probably decrease steadily in the future. It is a fitting climax to the work of Colonel Gorgas, which has challenged the admiration of the civilized world, that the month which probably marks the high tide of American occupancy of the Canal Zone should have passed without a single death from disease in the American colony.

ACIDOSIS IN METHYL ALCOHOL INTOXICATION

In various discussions of the toxicity of methyl alcohol which have been conducted in The Journal[1] since the now celebrated series of fifty-seven fatal cases of poisoning among the inmates of a home for the poor in Berlin early in 1912, it has been pointed out that inasmuch as the compound is in part oxidized to formic acid in the body this oxidation product may be an immediate cause of the toxic symptoms. It has been maintained that the salts of formic acid are not particularly poisonous to the organism. If, however, we assume that formic acid is liberated as a free acid which is not readily further oxidized, it is quite conceivable that it may give rise to symptoms of acid poisoning precisely like some other organic acids, notably beta-oxybutyric acid. One feature of the harmful effects of methyl alcohol ingestion, on this hypothesis, would be the acidosis developed by its oxidation product. Normally such organic acids formed in disturbed intermediary metabolism are neutralized by ammonia in the body so as to spare the store of fixed alkalies which are present. A high output of ammonia in the urine is accordingly an index of a condition of acidosis. The theory here evolved and originally suggested in the case of methyl alcohol intoxication by Schmiedeberg has been put to a test in his laboratory by Król.[2] His experiments show clearly that the administration of methyl alcohol to animals is in fact attended with a pronounced increase in the output of ammonia in the urine. The existence of the suspected acidosis would therefore seem to be established. It by no means follows that this is of itself sufficient to account for all the characteristic symptoms of methyl alcohol intoxication. Król noted that the amount of formic acid actually excreted by his experimental animals was too small to account for all of the ammonia simultaneously present in the urine. Other acids must also arise. In any event, however, the now clearly demonstrated acidosis is a factor which deserves to be taken into account in a consideration of the phenomena of poisoning with wood alcohol.

1. Meltzer, S. J., and Auer, J.: Combined Action of Magnesium and Ether; Evidence of a Central Effect of Magnesium; Proc. Soc. Exper. Biol. and Med., 1913, x, 159.

1. Methyl Alcohol as a Poison, The Journal A. M. A., Nov. 30, 1912, p. 1974; The Case of Methyl Alcohol, Dec. 7, 1912, p. 2075; Wood Alcohol—Poison, April 19, 1913, p. 1231; Methyl Alcohol and the Blood, The Journal A. M. A., May 10, 1913, p. 1466.

2. Król, J.: Ueber das Wesen der Methylalkoholvergiftung, Arch. f. exper. Path. u. Pharmakol., 1913, lxxii, 444.

Medical News

DISTRICT OF COLUMBIA

New Officers.—Washington Obstetrical and Gynecological Society, October 10: president, Dr. J. F. Moran; secretary, Dr. Truman Abbe.

Hospital Building Dedicated.—The Woman's Missionary Society of the Methodist Episcopal Church, in session in Washington, October 19, dedicated Robinson Hall, a structure erected at a cost of $150,000, and dedicated by the society to Sibley Hospital.

Physician Invents Aeroplane.—Dr. Henry L. E. Johnson, Washington, has obtained a patent on a constructive principle of an inverted arch for an aeroplane, which is designed to add to the safety of the machine particularly in descent, and to lower the center of gravity.

Woman's Clinic Opened.—A woman's clinic with the object of preventing as well as curing disease, has been opened at 716 Thirteenth Street, Washington. The clinic is open from 5 to 7 p. m., and two days in the week are devoted to children. The chairman of the medical committee is Dr. Elnora Folkmar.

ILLINOIS

Child Welfare Exhibition in Peoria.—Peoria is to have a child welfare exhibition in its coliseum from October 27 to November 4. Dr. Clifford U. Collins is chairman of the executive committee.

New Officers.—Tazewell County Medical Society at Pekin, October 14: president, Dr. G. W. Fockler, and secretary-treasurer, Dr. E. F. Kelchner, both of Delavan.——McDonough County Medical Society at Bushnell, October 7: president, Dr. W. W. Hendricks, Bardolph; secretary-treasurer, Dr. C. J. Rider, Bushnell.

Correction.—The secretary of the Illinois State Association for the Prevention of Tuberculosis requests that a correction be made in the news item in THE JOURNAL of October 14, in which it was announced that Dr. William A. Evans was elected president of the association. Dr. Evans withdrew his name from nomination, and Dr. George T. Palmer, Springfield, Ill., was elected president.

Illinois Conference of Charities.—The Illinois Conference of Charities held its annual meeting in Rockford, and elected the following physicians as officers and committeemen: first vice-president, Dr. George T. Palmer, Springfield; committee of service, Drs. George T. Palmer, Springfield, and John Bartlett, Galesburg; eugenics, Drs. William L. Healy, Anna Dwyer and Charles P. Caldwell, Chicago; W. H. C. Smith, Godfrey, and Edith B. Lowry, Chicago; medical social work, Drs. Adam Szwajkart, Chicago, and A. J. Brislen, Chicago; committee on exhibits and publicity, Dr. H. A. Pattison, Rockford.

Personal.—Dr. H. N. Bascom, Peoria, chief surgeon of the McKinley system, entertained the surgeons of the McKinley system at dinner at the Creve Coeur Club, October 15.——Dr. J. M. Kaiser, Somonauk, is confined to his home by reason of a cerebral hemorrhage.——Dr. C. A. Wilcox, Amboy, is making satisfactory recovery from his recent operation in the Dixon Hospital.——Work has been commenced on a new solarium for Dr. P. E. N. Greeley, Waterman. The solarium will have twelve sun or outdoor sleeping-rooms.——Dr. E. P. Hatheway, Ottawa, is ill in the hospital with an infected wound of the arm.——Dr. J. Mather Pfeiffenberger, Alton, has returned from Europe.

Chicago

Personal.—Dr. Eugene S. Talbot and daughter, Dr. and Mrs. Herman L. Kretschmer and Dr. B. Barker Beason have returned from abroad.

Dinner to Interns.—The Chicago Medical Woman's Club gave its annual dinner to the woman interns in Chicago hospitals, October 18. Dr. Frank Billings was the guest of honor.

Special Meeting of Gynecological Society.—The Chicago Gynecological Society announces a special meeting to be held November 15, in the Florentine Room of the Congress Hotel. At this meeting Professors Krönig and Gauss will be the guests of honor, and papers will be read by Drs. Robert L. Dickinson, Brooklyn, and Thomas S. Cullen, Baltimore.

Hospital News.—The new West Side Hospital building at Lincoln and Harrison Streets was formally opened October 17. The building has cost $200,000, and has accommodation for 170 patients.——A five-story building, to cost about $100,000 is being erected at Washington Boulevard and North Campbell Avenue by the Washington Boulevard Hospital Association, which at present maintains the Monroe Street Hospital.

Recommendations Regarding Criminal Puinishment.—At the meeting of the Chicago Medical Society, October 14, the committee on criminal punishment made the following recommendations, and the report was adopted by the society:

"The separation at all times of misdemeanants and felons.

"That every aid be given the state's attorney's office and the judges to hasten grand jury hearings and final trials.

"That every effort be made to encourage the extension of the reformatory idea to criminals of every class, excepting the incorrigible habitual criminal and those guilty of capital crimes, and that these latter be sentenced to 'state schools,' rather than to 'state prison.'

"That a sentencing board or commission be appointed by the governor for the three state districts, to consist of seven members, who shall classify all criminals in the state, their family, physical, mental, and criminal history.

"To encourage the women of Illinois to take better care and extend moral and material support to the women who have served sentences in penal institutions of the state, and thus preserve them from a life of vice or crime."

INDIANA

Sanitarium Incorporated.—The Dr. Stackhouse Sanitarium, Crawfordsville, has been incorporated with a capital stock of $20,000.

Hospital Contract Awarded.—The building committee of the Methodist Hospital, Indianapolis, have awarded a contract for the new pavilion, which will cost about $50,000 and will increase the capacity of the hospital to 285 beds.

Physicians Win Law Suit.—In the case of David Linn, Nappanee, versus Drs. Price and Price, Nappanee, in which $10,000 damages was claimed on account of alleged malpractice, a jury in the Superior Court at Elkhart, October 4, decided in favor of the defendants.

Antituberculosis Society Secretaries Organize.—An organization was perfected in Indianapolis, October 17, by secretaries of city and county antituberculosis societies of the state. W. B. Thurber, Indianapolis, was elected president; Dr. C. W. Hartloff, Evansville, vice-president, and Mrs. E. B. Keaher, Anderson, secretary-treasurer.

Tri-State Association of Colored Physicians.—At the fifth annual session of the Indiana Association of Negro Physicians, held in Indianapolis, October 15 and 16, under the presidency of Dr. A. H. Wilson, Indianapolis, a resolution was adopted that the association combine with like associations of Ohio and Kentucky to form a tri-state organization.

Trachoma Hospital Desired for Bartholomew County.—The State Board of Health has requested that a special hospital be established in Bartholomew County for the treatment of trachoma. In a recent inspection made by Dr. James A. Nydeggar, U.S.P.H.S., of the children in the public schools in Bartholomew County, forty-eight cases of trachoma were discovered.

District Society Meeting.—The thirteenth annual meeting of the Eleventh Councilor District Society was held in Peru, October 16, and the following officers were elected: president, Dr. G. R. Daniels, Marion; vice-presidents, Drs. J. M. Toney, Vanburen; W. A. Domer, Wabash; Claude S. Black, Huntington; P. B. Carter, Macy; G. R. Coffin, Monticello, and C. C. Hickman, Yeoman.

Personal.—Dr. William F. Smith, Vincennes, is reported to be seriously ill.——Dr. Amzi Weaver, Elizabeth, fractured his arm recently while cranking his automobile.——Dr. Henry Jameson, formerly dean of the Indiana Medical College, has been elected president of the Indianapolis Street Railway Company.——Dr. John J. Briggs, Indianapolis, who has been ill with typhoid fever, is reported to be improving.——Dr. Charles R. Crow, Indianapolis, is reported to be seriously ill with neuritis.

Health Board Lacks Funds.—The Board of Health of Indianapolis is in serious difficulty on account of lack of funds. Under a recent law the board fixed the salaries of all its employees. A member of the City Council, having been treated at the City Hospital, introduced a resolution increasing the pay of student nurses in that institution. This resolution was adopted, but the city attorney held that it was illegal, and as the board thought it inadvisable to increase the pay of nurses, the council has held up the appropriation for the Board of Health and has refused to pay expenses incurred during the recent flood. The contagious disease fund having been exhausted on account of large increase in cases of diphtheria, the Board of Health is in a bad financial condition.

MARYLAND

Baltimore

Sanitarium Burned.—The Edgewood Sanitarium was partly destroyed by fire early on the morning of October 14. The dense smoke caused the death of two patients by suffocation. There were ten patients in the institution at the time of the fire. A nurse was severely burned and received other injuries in attempting to rescue the patients who were suffocated.

Dinner to Students.—Dr. Howard A. Kelly gave a dinner to 500 medical students from the various medical colleges in Baltimore on October 17. Governor Goldsborough and prominent clergymen who are interested in the welfare of the many medical students who come to Baltimore each year, delivered addresses.

Semi-Annual Meeting of the Faculty.—The semi-annual meeting of the Medical and Chirurgical Faculty of Maryland was held in Hagerstown, October 21 and 22. Dr. Carroll Fox, surgeon, U. S. Public Health Service, made a report on the milk supply in Maryland. A reception was tendered the members by Dr. J. McPherson Scott.

Brady Urological Clinic.—The first step toward the utilization of James Buchanan Brady's gift of $250,000 to Johns Hopkins Hospital for a special urological clinic, under the direction of Dr. Hugh H. Young, has been taken, when the contracts for the construction of the building were awarded. The building will be three stories in height, with a roof garden for convalescent patients. It is expected that the clinic will be completed and ready for the reception of patients in about one year. Mr. Brady's gift provides for an annual gift of $15,000 for maintenance and it is said that he has made substantial provision in his will for the continuance of the work of the clinic.

MICHIGAN

New Officers.—Ottawa County Medical Association at Holland, October 14: president, Dr. A. Brower, Drenthe; secretary-treasurer Dr. H. J. Poppen, Holland.——Tri-County Medical Society (Lapeer, McComb and St. Clair counties), organized at Richmond: president, Dr. Robert M. Greenshields, Romeo, and secretary, Dr. R. J. Pelton, Armada.

State Board Election.—At the annual meeting of the state board of registration in medicine, held in Lansing, October 15, Dr. G. L. LeFevre, Muskegon, was elected president. Dr. Beverly D. Harison will continue to act as secretary of the board, as after eighty-seven ballots his opponent, Dr. Bret Nottingham, Lansing, had failed to receive the seven votes necessary for his election.

Hospital News.—Three units of the Detroit General Hospital, erected at a cost of about $500,000, are almost completed. These are the service building, the laboratory and the surgical building. Two additional buildings, a children's building and a maternity building, are now in sight.——The superintendent of Grace Hospital, Detroit, has been authorized to proceed with the construction of a new service building to cost $40,000.——The cornerstone of the new St. Joseph's Sanitarium, Ann Arbor, was laid September 21.

Personal.—Dr. R. T. Mason, Detroit, dislocated his right shoulder in a collision between his motor car and another machine recently.——Dr. L. W. Toles has been elected president and Dr. J. Earl McIntyre secretary of the board of control of the Ingham Sanitarium, Lansing.——Dr. S. N. Insley, Grayling, fractured his arm while cranking his automobile, recently.——Dr. Hattie G. Schwendener, St. Joseph, was struck by an interurban car, recently, and seriously injured.——Dr. Jennie Crozier, Grand Rapids, has gone to England, where, after three months' study of tropical medicine, she will return to her post of duty in India.——Dr. C. C. Clancy, Port Huron, has been elected president of the medical section of the National Fraternal Congress.

NEW JERSEY

Memorial Hospital Opened.—The Stumpf Memorial Hospital, Kearny, was formally opened, October 1, and received its first patients October 3.

Personal.—Dr. L. M. Halsey, Williamstown, who has been seriously ill, is reported to be improving.——Dr. Chauncey V. Everitt has resigned from the medical staff of the Jersey City Hospital.——Drs. Edgar A. Ill, Richard Coe and William D. Miningham, all of Newark, have been appointed members of the consulting staff of the Overbrook Insane Hospital.——Dr. E. J. McConaghy, Camden, was seriously injured in an automobile accident, recently.——Dr. Phillip E. Krichbaum, Montclair, fell while entering his automobile recently, fracturing his right arm.

New Officers.—Medical Society of Cape May, at Cape May Court House, October 7: president, Dr. Clarence W. Way, and secretary, Dr. Eugene Way, both of Dennisville.——Morris County Medical Association at the State Hospital, Greystone Park: president, Dr. James B. Griswold, Morristown; secretary, Dr. Henry W. Kice, Wharton.

Experts Formulate Plans for Care of Feeble-Minded.—A conference of experts was held October 10, at the State Institute for Feeble-Minded Women, Vineland, to formulate sane and economical plans for the care of the feeble-minded, and to interest alienists and psychologists in their training as well as in the diagnosis of their cases. Dr. Madelein Hallowell, superintendent of the institution, outlined an economical, human and safe system, by the gathering by the state of all its mental defectives into large institutions conducted on the unit plan, where women and children can mingle and lead some semblance of a normal life, the men being in the same institutions in separate buildings.

NEW YORK

Hospital Fund Campaign Closes.—The eight-day campaign to raise $200,000 for St. Mary's Hospital, Niagara Falls, closed October 9, with a total subscription of $62,805.

Society Reorganized.—Fifteen practitioners of Essex County met at Port Henry recently and reorganized the Essex County Medical Society, electing the following officers: president, Dr. L. G. Barton, Willsboro; vice-president, Dr. C. B. Warner, Port Henry; secretary, Dr. Charles Payne, Westport, and treasurer, Dr. W. T. Sherman, Crown Point.

Instruments Donated to Hospital.—The collection of surgical instruments of the late Dr. Nathan Jacobson of Syracuse has been presented by his widow to St. Joseph's Hospital. Mrs. Jacobson also announced her intention of presenting the library of Dr. Jacobson, consisting of nearly 2,000 volumes, to the library of the College of Medicine of Syracuse University.

New Officers.—Wyoming County Medical Society at Warsaw, October 14: president, Dr. W. J. French, Pike; secretary-treasurer, Dr. L. H. Humphrey, Silver Spring.——Orleans County Medical Association at Medina, October 7: president, Dr. R. W. Bamber, Carleton; secretary-treasurer, Dr. J. F. Eckerson, Shelby.——Genesee County Medical Society at Batavia, October 9: president, Dr. J. B. Miller, Alexander; secretary, Dr. Sophy E. Page, Bethany.——Seneca County Medical Society at Interlaken, October 9: president, Dr. L. A. Gould, Interlaken; secretary, Dr. F. W. Lester, Seneca Falls.——Wayne County Medical Society at Palmyra: president, Dr. E. A. Nevin, Newark; secretary-treasurer, Dr. M. A. Veeder, Lyons.

Renew Tuberculosis Fight.—Joseph H. Choate, president of the State Charities Aid Society, in a recent letter to the members of that organization, urges an energetic campaign for the suppression of tuberculosis. While he sees ground for great satisfaction in the results already achieved, he believes that the number of hospitals for tuberculous patients should be further increased. The number of local hospitals for the treatment of tuberculosis has increased in the last six years from two to nineteen. There are now seventy-nine public health nurses where formerly there were only two. Free tuberculosis dispensaries have increased from two to twenty-six, and the anti-tuberculosis societies have increased from two to 300, the membership of these societies now numbering 10,000. There were in the state, outside of New York City, 3,350 deaths from tuberculosis during the first seven months of 1911; for the same period of 1912 there were 3,301, a decrease of 49. For the first seven months of 1913 there were 3,118 deaths, showing a further decrease of 183. Ten counties in the state have voted to establish tuberculosis hospitals but have not yet done so. These counties should be urged with all possible force to carry out their plans.

New York City

Harvey Society Lecture.—The third Harvey Society lecture will be given at the New York Academy of Medicine November 1, by Dr. Charles V. Chapin, Providence, on "The Air as a Vehicle of Infection."

Hospital Wing Dedicated.—The new wing of the Misericorde Hospital was formally dedicated by Cardinal Farley on October 12. The hospital now contains twenty-five private rooms, five semi-private wards, three large maternity wards con-

taining 150 beds and a children's ward with a capacity of 125 cribs.

The Coming Safety Exhibit.—The American Museum of Safety plans to have an International Exposition of Safety and Sanitation at the Grand Central Palace, December 11 to 20. Several European governments are in communication with Director William H. Tolman of the American Museum of Safety with a view to displaying factory safety devices, novel playgrounds and various methods of preventing human waste. The Swiss government has promised to send a full line of exhibits.

Central Federated Union and Medical Inspection in the Public Schools.—At a recent meeting of the Central Federated Union, resolutions were passed by the Executive Committee and forwarded to the Board of Aldermen and to the Board of Estimate and Apportionment asking those bodies to favor the increased appropriation asked for by the Division of Child Hygiene of the Department of Health. The resolutions urged free medical inspection for all students in the public schools. In framing these resolutions the Central Federated Union was joined by a number of other fraternal, labor and benevolent organizations.

Oppose Building of Another Bronx Hospital.—At a hearing before the State Board of Charities on October 16 representatives of the Lebanon Hospital, which is located in the Bronx, opposed the plan of building a maternity hospital in that borough. The organizers of the Bronx Maternity Hospital claim that they have $30,000 pledged toward such an institution and believe that it is needed, while officials of the Lebanon Hospital think they are abundantly able to care for all the work in that vicinity and fear that another hospital would divide the support and weaken them and at the same time would add to the burden of the city.

NORTH CAROLINA

Personal.—Dr. R. H. Lewis, Raleigh, who has been ill at his home in the country, is reported to be improving slowly.——Dr. Albert Anderson, Raleigh, has resigned as a member of the Wake County Board of Education.

State to Furnish Antityphoid Vaccine.—Dr. C. A. Shore, director of the state laboratory of hygiene at Raleigh, announces that he is now able to furnish antityphoid vaccination at cost, in accordance with the action of the last state legislature.

Pellagra Building.—Mr. George W. Watts, Durham, will add a new building to the Watts Hospital in that city, to be devoted exclusively to the study and treatment of pellagra. A proposition has recently been made to the general government to establish a pellagra station in Durham, with headquarters in the Watts Hospital.

PENNSYLVANIA

White Haven Open to All Physicians.—By a recent action of the board of directors of the White Haven Sanatorium Association, it was decided that applications for admission to the sanatorium would be received from any physician in good standing, and not from members of the regular examining staff alone, as heretofore.

Personal.—Dr. W. W. Livingston, Dunlo, suffered a fracture of the base of the skull and spinal injuries, by the overturning of his automobile, October 10.——Dr. E. R. Walters, who recently resigned as a director of public health of Pittsburgh, was given a farewell dinner by the employees of the public health and charities department, October 14. Dr. H. B. Burns, the new director of public health, officiated as toastmaster.

Philadelphia

New Children's Hospital.—The managers of the Children's Hospital have purchased a site at Eighteenth and Bainbridge Streets, where they will erect a group of modern hospital buildings, which will have the best modern facilities and equipment for the care of sick children, for research and education, and for the prevention of children's diseases.

Personal.—Dr. John Grier Hibben, president of Princeton University, was the guest of honor of the medical club of Philadelphia, October 17. Dr. Hibben addressed the physicians and pointed to their opportunity in combatting the social diseases.——Dr. H. Augustus Wilson has resigned as visiting orthopedic surgeon to the Philadelphia general hospital.——Dr. William G. Stimson, chief physician of the Naval hospital in this city, has been ordered to Washington, D. C., as a member of the board of examiners of the Marine Hospital Service.

RHODE ISLAND

Hospital Opened.—The Blackstone Hospital, Pawtucket, was formally opened and dedicated September 22. The institution can accommodate sixty-five patients and is provided with thoroughly modern equipment.

Typhoid Epidemic in Artillery Company.—A number of the members of the Newport Artillery Company are reported to be ill with typhoid fever in the Newport Hospital, the cause being said to be a result of the trip of the organization to Put-In-Bay, Ohio, to take part in the Perry Centennial celebration.

TENNESSEE

Witherspoon Club.—A social club, named in honor of Dean John A. Witherspoon of Vanderbilt University, was organized by the members of the senior class of the Vanderbilt Medical School, September 29, with an initial membership of twenty-one.

Sanatorium Operated by Labor Union.—The Pressmen and Assistants' Union has recently completed a sanatorium for consumptives at Rogersville, Tenn., where members of the craft suffering from tuberculosis may receive care at the expense of the local union.

New Medical Society Formed.—The physicians of Cocke County met at Newport recently and organized the Cocke County Medical Society, electing the following officers: president, Dr. A. J. Nease; vice-president, Dr. C. T. Burnett, and secretary-treasurer, Dr. David Seay.

Term Lengthened at Vanderbilt.—With the opening of the medical department of Vanderbilt University, Tennessee, this year, the term of the medical school will be lengthened to nine months corresponding with the dates of the academy and engineering departments. This change is in line with the expansion of the medical department under the Carnegie endowment.

Personal.—Dr. J. B. Steele, city physician of Chattanooga, has been appointed chief of staff of the Erlanger Hospital.——Dr. John Allen Gentry, Chattanooga, has been appointed chief surgeon of the Southern Bell and Cumberland Telephone and Telegraph Companies, with headquarters in Atlanta, Ga.——Dr. F. M. Acree, Dover, was thrown out of his buggy, September 24, and seriously injured.——Dr. John A. Witherspoon, Nashville, has returned from abroad.——Dr. Thomas M. Smoot has resigned as mayor of Woodbury.——Dr. S. Burchart, Memphis, has gone abroad for the winter.

GENERAL

Correction.—The illustrations accompanying the article by Dr. H. D. Chapin in THE JOURNAL last week, pages 1419-22, were printed in a turned position. The correct position can be seen by holding THE JOURNAL sideways with the top of it on the right hand. The illustrations will appear in the correct form in the author's reprints, a copy of which we will send on receipt of a self-addressed stamped envelope.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Luke's German and Lincoln Hospitals, New York City, and the New York Eye and Ear Infirmary, $25,000 each.

Mount Sinai Hospital, New York City, $100,000, by the will of Benjamin Altman.

The Greenport Hospital, Long Island, $1,000, by the will of Salem D. Goldsmith.

For the St. Joseph's Hospital, Yonkers, N. Y., by popular subscription, $63,246.

Children's Hospital, Boston, Mass., $20,000 by the will of Miss Harriet O. Cruft.

Railway Surgeons Elect Officers.—At the tenth annual meeting of the American Association of Railway Surgeons, held in Chicago, October 15 and 17, the following officers were elected: president, Dr. D. S. Fairchild, Clinton, Iowa; vice-presidents, Drs. E. S. Judd, Rochester, Minn., R. A. Douglas, Collinsville, Okla., and I. L. Parsons, Brookhaven, Miss.; secretary-editor, Dr. L. J. Mitchell, Chicago (reelected); treasurer, Dr. H. B. Jennings, Council Bluffs, Iowa, and members of the executive board, Drs. S. C. Plummer, Chicago, and D. Y. Roberts, Louisville.

Students of Criminology Organize. — Preliminary steps toward the formation of a national association of psychologists, sociologists and medical scientists for scientific research addressed to fundamental conditions underlying criminology were taken at a dinner given by Dr. David C. Payton, superintendent of the Indiana Reformatory, Jeffersonville, at Indianapolis, October 13, at which thirty experts in criminology were present. A committee consisting of Dr. Peyton and

Prof. R. B. Von Klein Smid, Jeffersonville, Ind., Lightner Witmer, Philadelphia, Dr. William Healy, Chicago, and H. H. Hart of the Russell Sage Foundation, New York City, was appointed to work out plans for the new national organization.

Pediatrists Invited.—Through the courtesy of the New England Pediatric Society, an invitation has been extended to the members of the pediatric section of the Medical Society of the State of New York to attend the joint meeting of the New England, Philadelphia and New Jersey Pediatric societies, and the Pediatric Section of the New York Academy of Medicine, being held in Boston, November 8. The morning and afternoon are to be devoted to visiting hospitals, including the new Children's Hospital and the new Infants' Hospital, and clinics will probably be given at the Massachusetts Babies' Hospital, the Massachusetts General Hospital and the Boston Dispensary. There will be a dinner in the evening, and following this a scientific session at which four papers on pediatric subjects will be read and discussed.

Technology Faculty Member Goes to Public Health Service.—Prof. Earle P. Phillips, well known as a consulting sanitary engineer and as a contributor to the various technical journals along the lines of sanitary chemistry, bacteriology and engineering, has resigned from the faculty of the Massachusetts Institute of Technology, Boston, and from the staff of the sanitary research laboratory in that institution, to accept the professorship of chemistry in the United States Hygiene Laboratory, conducted by the United States Public Health Service in Washington, succeeding in that position Professor Franklin. Professor Phillips' work at the Hygiene Laboratory will be largely a continuation of his previous activities and will be devoted especially to investigation of the pollution of interstate streams—a work recently undertaken by the Public Health Service.

Sale of Christmas Seals by National Tuberculosis Association.—The Christmas seals of the National Association for the Study and Prevention of Tuberculosis have become familiar to almost everyone. In 1912 over forty million seals were sold, the proceeds of which were devoted to this most worthy cause. For 1913 the seal which we reproduce has been accepted; it is significant of the holiday season and is worthy of a place on every Christmas package or letter. It is proposed to distribute one hundred million of the seals, and it is hoped that by the 25th of December not one will remain unsold. The project is one which has previously been well supported by medical men; a renewed and greater interest should be given.

Dr. Reid Hunt's Successor.—An announcement of great importance is the appointment of Prof. Carl Voegtlin as professor of pharmacology in the Hygienic Laboratory, United States Public Health Service, to succeed Prof. Reid Hunt, now head of the department of pharmacology at Harvard University. Professor Voegtlin was born in Switzerland in 1879, received his degree of Ph.D. at Freiberg, Germany, in 1902 and then did postgraduate work at Victoria University, Manchester, England, in 1903. In 1904 he accepted the position of instructor in chemistry in the University of Wisconsin and one year later became assistant in medicine at Johns Hopkins University, rising successively to associate and associate professor of pharmacology. Since that time he has studied on various occasions at the universities of Berlin and of Munich. His work covers researches in pathologic protein metabolism, treatment of tetany with calcium salts, function of the liver in anaphylaxis and jaundice, the function of adrenal cortex, pharmacology of digitalis and nitrates and the treatment of experimental beriberi. He is a member of a number of important scientific organizations, among them being the Society of Pharmacology and Experimental Therapeutics, American Medical Association, Society of Biological Chemists, and the American Physiological Society. Needless to say, the Hygienic Laboratory is to be congratulated on securing the services of a man of such high qualifications as Professor Voegtlin to succeed Professor Hunt. His appointment assures a continuance of the high standard of research work in pharmacology conducted at the Hygienic Laboratory. He is a young man of exceptional capacity and scientific attainments and with still greater promise for the future. Dr. Reid Hunt, whose appointment to the professorship of pharmacology at Harvard University has been coincidentally announced, is the second member of the Council on Pharmacy and Chemistry to go to Harvard.

CANADA

Increase of Defectives in Canada.—The following statistics of the bulletin just issued at Ottawa gives the defective classes in Canada: Blind, 3,238; deaf and dumb, 4,584; insane, 14,702; idiotic, 5,387, making a total of 28,611, of whom 15,530 are males and 13,081 females. From 1901 to 1911 the population increased 34.17 per cent. and the defectives increased 9.42 per cent. The only province which did not exhibit an increase was New Brunswick.

Personals.—Dr. Orr has been appointed medical officer of health at Medicine Hat, Sask.——Dr. H. J. R. Lindsay has been appointed medical officer of health at Yorkton, Sask.——Dr. James C. Fyshe, for the past two years medical superintendent of the Montreal General Hospital, has been appointed superintendent of the Edmonton, Alberta, hospitals.——Dr. G. Arthur Winters, Toronto, will spend two years abroad in graduate study.——Dr. J. T. Fotheringham, Toronto, has been appointed chief of one of the medical services in the Toronto General Hospital, succeeding Dr. W. P. Caven, resigned.

Pollution of Boundary Waters.—Dr. J. W. S. McCullough, chief health officer for Ontario, has left for Washington, D. C., to lay before the International Waterways Commission the report on the pollution of boundary waters based on investigations carried on during the past summer. Dr. McCullough will be joined in Washington by Dr. McLaughlin, who had charge of the work on the American side. The contention of the health authorities is that water contamination exists where the raw sewage of large cities is allowed to run into lakes and rivers, and this extends to such distances as to prove a serious menace to other places depending on these streams for a domestic supply of water.

Hospital News.—The Dominion Steel Corporation will build a hospital at Waterford, N. S. It will be administered by a board of trustees, one-half appointed by the company and one-half by the citizens of Waterford.——London, Ont., has recently added twelve new private wards to the Victoria Hospital.——By the end of the present year the new wing of the Kingston General Hospital will be ready for occupation.——The Brant Sanatorium for Consumptives has been opened near Brantford, Ont. The building cost $23,000 and has accomodation for twelve patients.——The Hamilton (Ont.) General Hospital will be improved to the extent of $100,000.——A new hospital for babies is being erected in Montreal.——The hospital at Selkirk, Man., is to be enlarged at a cost of $65,000.——The provincial university of Saskatchewan at Saskatoon has prepared plans for a new hospital.——A new isolation hospital is to be erected in Regina, Sask., at a cost of $77,600.——The Dominion Government has granted 320 acres of land on the main line of the Canadian Pacific Railway in Alberta for a sanatorium for incipient cases of tuberculosis.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 11, 1913.

The National Insurance Act

A curious situation has occurred in connection with medical benefit under the insurance act. For one reason or another, 400,000 of the insured in London (about a quarter of the whole) have not selected any physician on the panel. In some cases the reason is a rooted objection to the act or an objection to being treated by any one but the patient's own physician, who has not joined the panel. In other cases the persons have not been ill, do not expect to be ill, and will not go to the trouble of selecting a physician. The result is that a large sum, $525,000, has accumulated in the hands of the insurance committee. The question has arisen, To whom does this belong? On the one side it is argued that the money belongs to the physicians on the panel because it is already set aside for medical service and they had taken the risk of the illness of these persons on an insurance basis. On the other hand, the insurance committee has taken a lawyer's opinion, which is to the effect that the physicians on the panel are entitled to a definite sum calculated at so much per head for the insured persons on their list and to no more.

A case has occurred in which for the first time the question has been raised as to the responsibility of a panel doctor to pay for the medical attendance of an insured person on his list whom he failed to attend when called. The patient was attacked with pneumonia. A message was sent to the physician asking him to call. As he did not come another message was sent four hours later and he promised to come. A third message was sent three hours later by the patient's sisters and some altercation took place. The physician complained that he had not been summoned in the morning when he could have paid the visit on his rounds. He was told that if he would not come now some one else would be called. He said, "I am not coming; go and get some one else." For the defense the doctor stated that the first message reached him at 3 in the afternoon when he had a "snack" and attended patients in his office. He was leaving to attend the patient when the latter's sisters arrived and insisted on his going immediately. He became nettled at their manner and when they said that they would get another physician he took that as his dismissal. Judgment was given for $11 claimed by the plaintiff for the expense of engaging another physician, but leave was given to appeal on a point of law.

Sir William Osler on Medical Examinations

At the opening of St. George's Hospital Medical School, Sir William Osler delivered an address on examinations. He said that the great difficulty in medical study was the growth of every subject of the curriculum. An educational system framed for simple tests and simpler conditions had been outrun, and the pressure at the present day was hard on the teacher but harder on the student. From their medical workshops they turned out after five years' preparation the finished material, nearly one-half of which was declared to be defective and rejected. The growth of rejection in the final examination was demonstrated by the following figures: In 1861, 12 per cent.; in 1876, 2 per cent.; in 1886, 32 per cent., and in 1895, 41 per cent. He made the following suggestions: Simplify the curriculum so as to give the student more time. Allow the teachers a free hand in the matter of systematic lectures. Let the lectures be reduced to a minimum, or abolished altogether. The subject of medicine may be taught, for example, without systematic lectures. The lecture has its value, but its day is gone, and it should give place to other methods better fitted to modern conditions. They should boldly acknowledge the futility of attempting to teach all to all students. They should burn the anatomic fetish to which they had sacrificed long enough and to their great detriment. "Glance at Cunningham's 'Anatomy.' It has 1,465 pages, many in small type, and not one without a water-jump for the first grand national of the medical student. It is barbaric cruelty with so much ahead to burden the mind with minutiae which have only a Chinese value—a titanic test of memory." He would give credit for work done throughout the course. Let all who taught examine, and let education and examination go hand in hand. Further, he would simplify the examinations. Let them cut out the written papers, for as a student handled a patient it was easy to tell whether or not he had had a proper training, and for that purpose fifteen minutes at a bedside were worth three hours at the desk. When possible, the evidence of original work should be substituted for examination. He would compel no student to pass an examination in the same subject a second time.

The Dangers of Radium

Last week reference was made to the fact that most of the staff of the Radium Institute were suffering from burns produced by radium. The assistant medical superintendent, Dr. Arthur Burrows, states that most of the staff have been burned to a greater or less extent at some time or another. In his own case he found the skin peeling off his fingers when he went to play golf. The nurses, however, who do most of the actual handling, suffer most. In addition to the more or less painless skin-peeling, the finger-nails become brittle and split down the center, ulcerated spots appear, and in time the hands become totally anesthetic. It is curious that the hands of those who have much to do with radium are always far more susceptible to heat than to cold. Gloves are not much protection. The only thing to do when the fingers show these symptoms is to have nothing to do with radium until they recover. Those who develop burns are usually given some work in connection with the institute which does not involve immediate contact with the element. Radium in course of time burns most things to which it comes in contact. For instance, the lining of the boxes in which it is kept is often entirely eaten away. The ill effects are not felt in the human body until a fortnight after the contact. It eats away the abnormal tissues, such as carcinoma, sarcoma, etc., and leaves the surrounding normal tissues in an ordinary condition. In its antipathy to abnormal tissues lies its curative properties in these cases. But in time, or as the result of excessive application, radium will have an effect also on the normal tissues. A subsidiary effect on the patient is increased susceptibility to changes of temperature over areas that have been treated with radium. Many patients who have had rodent ulcers and superficial skin lesions cured with radium experience great discomfort at the site of the old lesion when very cold or very warm air plays on it. This susceptibility, however, gradually disappears in two or three months. A marked condition of lethargy is frequently, it might almost be said invariably, noted in patients receiving prolonged exposures with large quantities of heavily screened radium. It generally makes its appearance about the fourth day of the treatment, and passes off within a few days of the cessation of the exposures.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 10, 1913.

Mosquitoes in Paris

Continuous rains this summer and autumn have favored the breeding of mosquitoes, which swarm at present in various quarters of Paris. Professor Laveran, on account of his well-known mastery of the subject, was requested by the Council on Public Hygiene to study the subject, and has recommended measures of public education with regard to the prevention of mosquito-breeding.

Physical Culture in the Schools

Professor Gilbert has called the attention of the minister of public instruction to the failure to put into force the law of February, 1880, which makes gymnastic exercises obligatory in lyceums, colleges and primary schools. It was decided that the first application of the law should be made at the Janson-de-Sailly Lyceum. Only those students are to be excused who can produce a medical certificate that their health will not permit them to join in the exercise. It is to be hoped that the measure will soon be extended to all the schools to which the law applies.

Unveiling of a Monument to the Memory of Professor Raymond

I have already mentioned the unveiling of a bronze medallion in memory of the late Professor Raymond at the Salpêtrière (THE JOURNAL, Aug. 9, 1913, p. 422). On October 4 a bronze bust of Professor Raymond was unveiled at his birthplace, Saint-Christophe, near Tours.

Education of a Child Relieved of Congenital Blindness

Dr. Moreau of Saint-Etienne reports in the *Loire médicale* the history of a child of 8, born blind, who was operated on in his service for a complete bilateral cataract. Until entering the hospital, the child had lived at home with his father, a poor peasant, and had received no education whatever. It was an anxious moment when, a week after the operation, the bandage was removed from the eyes. But the child, on being able to see for the first time, made simply a few meaningless sounds. The bandage was replaced, and the trial repeated two days later. The child again showed no emotion. As each object was shown to him after he had touched it so that he knew it perfectly well, he said that he did not know what it was. It took many days for the child to acquire an idea of colors, but when he did, the color-concept assumed an abnormal significance, and everything was interpreted from this point of view. Whatever object was shown to the child was white or black according to whether it faced the light or was in shadow. He analyzed everything that he saw into colored spots. Each new thing that he learned, however, was of use in appreciating things that came after; thus, when the child learned that an object was a box, everything empty that he could stick his hand into was for him a box: his drinking-cup, his cap, his boots, etc. Whenever he wished to take hold of anything he acted as one does who can see, but in grasping it he relied more on the sense of touch than he did on sight. He had no sense of space. He tried to touch lamps which were a hundred feet away. He mistook the moon for one of the latter. He reached for the stars. Fifteen months after his entrance into the hospital he could not read, in spite of the efforts of the nun who took care of him to teach him the

alphabet. Then his father took him away. Dr. Moreau saw the child a year later. He had remained at home without further education, had learned nothing new, and had forgotten most of what he had picked up while at the hospital.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Oct. 3, 1913.

Future Regulation of the Relation of Physicians to the Krankenkassen in Berlin

The president of the Berlin Insurance Bureau, the highest local authority for the social insurance law, has presented a draft of principles which are to form the basis for regulating the relations between the Krankenkassen and physicians. As these conditions will serve as a model for many Krankenkassen in the empire, and govern a great part of the entire practice of Berlin, the ultimate form of the regulations is of very special importance. The Krankenkassen are to have the right to determine the medical system that is suitable for the societies. In any society the physicians appointed form a medical league to be represented by a business board. The Krankenkassen have the right to appoint special confidential physicians *(Vertrauensärzte)*. In every society a commission on complaints is to be appointed, consisting of the same number of representatives of the society and of the society physicians. Societies which accept these rules will form (1) an election committee for the selection of the physicians to be appointed for the society, and (2) an arbitration court for the settlement of disputes. With reference to the appointment of insurance physicians the draft gives the following: The number and territory of physicians are to be determined by the directors of the society. According to the new apportionment of physicians, one physician to 800 members is to be regarded as normal. A registration bureau is to be established and from the list of suitable names the election bureau is to fill vacancies. Individual solicitation for appointment is forbidden on pain of exclusion from the eligible list. Contracts must be made in writing between the society and the physician to be appointed or the medical committee of the society. In the latter case, the other physicians become responsible for the performance of the duties of insurance physician with the signing of a reciprocal bond. Insurance physicians must not have separate offices for insurance work, must not treat patients in common as to time or place with charity patients, and must not use them for teaching purposes without their express permission. The insurance physician is to be assured sufficient rest on Sundays and holidays. For the remuneration of the insurance physician a definite annual fee of $1.25 (5 marks) per member is established. The work of the insurance physicians includes also night visits and obstetrics, including abortion. Night visits are to be paid for at the rate of $1.25 (5 marks) and obstetric attendance at $3.75 (15 marks) extra.

In the discussions of the central league of the Berlin insurance physicians over this draft of regulations, dissatisfaction with the marked tendency to restrict the rights of physicians in favor of the Krankenkassen was generally expressed. The first provision by which the Krankenkassen alone are to have the right to determine the medical system which is to be enforced is particularly objectionable, because with this right the free choice of physicians, the ideal to be sought for, which exists in a great number of the societies, can be abolished. Moreover, special opposition appeared to the provision that most physicians after the reorganization will be transferred from the society to which their previous patients belonged and will not be automatically reappointed, but must first secure a new election. The provision by which the insurance physicians' offices may not be located in a different place from their private offices was considered to be a serious damage to many specialists who, on account of the great distances in Berlin, are compelled to have offices for the insurance patients in another quarter of the city from that in which their private residences are located. The fee of $1.25 (5 marks) is regarded as too little. At least $1.37 (5.5 marks) was demanded.

New Sanitary Office of the Military Institute

The establishment of higher sanitary service in our army received a considerable extension, October 1, by the establishment of a new sanitary office for the Military Institute. The function of this bureau is the examination of all the military reports in accident cases, inspection of parade grounds, military schools, etc.

Marriages

WILLIAM ERNEST BALSINGER, M.D., Houston, Tex., to Miss Loretta L. Brown of Fargo, N. Dak., at Houston, October 7.

EDWARD BRENDON, M.D., Farley, New Hartford, Conn., to Miss Mary Elizabeth Shannon of Collinsville, September 30.

JAMES PAYTON LEAKE, M.D., U. S. P. H. S., Washington, D. C., to Miss Mary Chase King of Baltimore, Md., October 4.

GEORGE HUSTON BELL, M.D., New York City, to Miss Florence Winifred Collings of Halifax, N. S., September 27.

RUSSELL MCWHORTER CUNNINGHAM, M.D., Ensley, Ala., to Miss Annice Taylor of East Lake, Ala., October 4.

ALBERT EUGENE STERNE, M.D., Indianapolis, to Mrs. Stella Gallup Pickrell of Evanston, Ill., October 18.

ALFRED C. GIRARD, M.D., U. S. Army (ret.) Washington, D. C., to Miss Charlotte Epping, October 8.

AXEL EMANUEL HEDLUND, M.D., Dalton, Neb., to Miss Ethel M. Kreader of Nebraska, September 21.

JAMES L. HOLDEN, M.D., Columbus, Ohio, to Miss Brenda Miller of Zanesville, Ohio, October 9.

ARTHUR CHRISTIAN SLINDE, M.D., to Miss Regina Alicia Murphy, both of Chicago, October 8.

WILLIAM SPENCER NEEDHAM, M.D., to Miss Mae McNeil, both of Louisville, Ky., August 23.

WALTER G. EISENMAN, M.D., Chisholm, Minn., to Miss Hinkle of Chicago, October 9.

IDA REBECCA LANTZ, M.D., and Mr. Franklin Muir, both of Spokane, Wash., September 3.

LOUIS NORTHCOTT MARKHAM, M.D., Longview, Tex., to Miss Princess Finch, October 22.

OLIVER D. WALKER, M.D., to Miss Margaret M. Moore, both of Salina, Kan., October 9.

CLARENCE J. KENNEY, M.D., to Miss Eunice Thomsen, both of Milwaukee, October 9.

Deaths

William Hudson Wathen, M.D. one of the most prominent men in medicine south of the Ohio River; a gynecologist of wide repute; died in St. Anthony's Hospital, Louisville, October 7, aged 67. He was born near Lebanon, Ky., the son of Richard and Sophia Abell Wathen. He received his preliminary education in St. Mary's College, and took his medical course at the University of Louisville, graduating in 1870. He received from Notre Dame University the degree of LL.D. in 1895. He began practice in Louisville in 1871. He was one of the founders of the Kentucky School of Medicine, and served as its dean for several years, and as professor of abdominal surgery and gynecology on its faculty. After the consolidation of the school with the University of Louisville, he retained this chair in the new institution. He was a Fellow of the American Medical Association, chairman of the Section on Obstetrics and Gynecology in 1889, and orator in surgery in 1907. He was a member of the Kentucky State Medical Society, and its president in 1888; a fellow of the American Gynecological Society, and a charter member of the Louisville Clinical Society. He was also a member for many years of the Mississippi Valley Medical Association and many other learned societies. He took a deep interest in medical education, and was one of the leaders in its renaissance in Kentucky. After the enactment of the medical law Dr. Wathen served as medical referee for Jefferson County, and to him, more than to any one else, with one exception, is due the fact that Kentucky occupies the unique position of being the only state which has not in it an advertising or quack doctor. He did much original work in surgery, and ranked at the head of the specialists in his state, especially with reference to vaginal surgery. He was an indefatigable worker, a loyal friend and an honest but persistent fighter. In his death, which occurred after a three weeks' illness, the profession of Kentucky has lost probably its most effectual individual worker. At his funeral six of his nephews acted as active pallbearers. The staff of St. Anthony's Hospital, of which Dr. Wathen was the senior member, on October 9, unanimously adopted resolutions setting forth the honesty of purpose, indomitable courage of conviction and uniform

kindly courtesy, his faithful service and unswerving attention to duty; extending sympathies and condolence to the bereaved family and to the sisters in charge of the hospital, and directing that a copy of the resolutions be spread on the minutes of the staff and hospital and duly published.

Charles Eugene Michel, M.D. Medical College of the State of South Carolina, Charleston, 1857; a surgeon in the Confederate service during the Civil War, division medical inspector at its close, and since that time an oculist of St. Louis; for many years professor of ophthalmology in the Missouri Medical College, and a member of the staff of the St. Louis Eye, Ear, Nose and Throat Infirmary; said to have been the first to employ electrolysis in his specialty, and to use the present accepted method for the removal of pterygium, and one of the first to discard the method of keeping cataract patients in a dark room for a long time after operation; died at his home in St. Louis, September 29, aged 80. The directors and staff of the infirmary of which he was so long a member of the active and honorary staffs adopted resolutions deploring Dr. Michel's death, and setting forth his services to the medical profession and especially to ophthalmology.

James Lewis Srodes, M.D. University of Pittsburgh, Pa., 1881; a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States; surgeon of Pennsylvania Volunteers during the Spanish-American War; for one term a member of the House of Representatives of Pennsylvania, and for eleven years superintendent of the Allegheny County Home and Hospital for the Insane, Woodville, Pa.; died at his home in Woodville, September 26, aged 51.

Robert L. Brodie, M.D. Medical College of the State of South Carolina, Charleston, 1851; a Fellow of the American Medical Association; assistant surgeon in the United States Army from 1854 until the outbreak of the Civil War, when he resigned and entered the Confederate service, in which he served as medical director; afterward a resident of Charleston; at one time president of the Medical Society of South Carolina; died at his home in Charleston, October 2, aged 84.

Thomas Jacob Biggs, M.D. Medical College of Ohio, Cincinnati, 1887; formerly a Fellow of the American Medical Association; a member of the Connecticut State Medical Society; at one time health officer of Glendale, Ohio, and acting assistant surgeon, U. S. Army; for many years a practitioner of Stamford, Conn., and surgeon for the Stamford Hospital; died in the Somerset Hospital, Somerville, N. J., October 11, from chronic nephritis, aged 48.

Herman D. Peterson, M.D. Chicago Medical College, 1892; a Fellow of the American Medical Association; a member of the Physicians' Club of Chicago and Mississippi Valley Medical Association; anesthetist to St. Luke's Hospital, Chicago, and attending gynecologist to St. Luke's Hospital Free Dispensary; lecturer on anesthetics in Northwestern University Dental School; died October 18, while being taken to St. Luke's Hospital, from pneumonia, aged 43.

Jerome Leslie Stone, M.D. New York University, New York City, 1878; a member of the Minnesota State Medical Association; physician in charge of the Rochester (N. Y.) Sanatorium from 1880 to 1885, and since that time a practitioner of Minneapolis; was found dead in his home in that city, October 8, from the effects of poison believed to have been self-administered, aged 62.

Nathaniel Meacon Semple, M.D. Washington University, St. Louis, 1897; a Fellow of the American Medical Association, and a member of the St. Louis Ophthalmological Society; assistant in the eye clinic in his alma mater; consulting oculist to the United Railways Company of St. Louis and the Missouri Baptist Sanitarium; died at his home in St. Louis, October 3, aged 37.

Charles John Martin Willich, M.D. Bellevue Hospital Medical College, 1893; for thirty-two years a tester of scientific apparatus, and prominent as a physicist and chemist; died at his home in Brooklyn, September 23, from malignant disease of the throat, aged 62.

Frank Frazer Thomson, M.D. Jefferson Medical College, 1894; chief medical examiner of a Philadelphia insurance company and a member of the staff of the Presbyterian Hospital; died at his home in Philadelphia, September 21, from uremia, aged 45.

Mark E. Crawford, M.D. Missouri Medical College, St. Louis, 1881; a member of the Missouri State Medical Association; died at his home in Camden, July 31, from cerebral hemorrhage, aged 58.

Charles B. Tompkins, M.D. Rush Medical College, 1861; assistant surgeon and surgeon of the 17th Illinois Volunteer Infantry, and surgeon of the 59th Illinois Volunteer Infantry during the Civil War, afterward a practitioner of Lewistown, Ill.; since 1886 a practitioner of Jasper, Fla.; died at the home of his son in South Jacksonville, Fla., September 17, aged 75.

Robert Delos Smith, M.D. Jenner Medical College, Chicago, 1903; of Yerington, Nev.; a Fellow of the American Medical Association; one of the leading practitioners of Mason Valley, Nev., where he founded hospitals at Yerington and Mason, and was a surgeon for the mine smelter and local railroad surgeon; died suddenly in Denver, October 2, aged 41.

Herman Christian Thiess, M.D. Columbus (Ohio) Medical College, 1886; a member of the Ohio State Medical Association, and at various periods president, vice-president, secretary and treasurer of the Summit County Medical Society; was struck by a street-car, October 12, in Akron, and killed, aged 49.

Clarence Fay Wood, M.D. New York University, New York City, 1895; a practitioner and for six years president of West Winfield, N. Y.; a Fellow of the American Medical Association; aged 39; was killed at Clayville, October 8, by a collision between his motor-car and a train.

Vannie E. Smith, M.D. Kentucky School of Medicine, Louisville, 1894; a member of the Kentucky State Medical Association and a practitioner of Powersville; died recently at the home of his sister in Covington, Ky., from carcinoma of the stomach, aged 44.

Edwin Clifford Town, M.D. Jefferson Medical College, 1873; a Fellow of the American Medical Association; chief medical examiner in the relief department of the Pennsylvania Railroad; died at his home in Narberth, Pa., September 29, from nephritis, aged 63.

Joseph Neely Hopkins, M.D. College of Physicians, Keokuk, Iowa, 1885; a Fellow of the American Medical Association; for many years a practitioner of Burnt Prairie, Ill.; died at the home of his sister in Princeton, Ind., October 7, from neuritis, aged 67.

Seiler Joseph Aspelund, M.D. University of Minnesota, Minneapolis, 1906; a Fellow of the American Medical Association; for two years assistant city physician of Minneapolis; died at his home in that city, September 26, from heart disease, aged 33.

Frank D. Whiteacre, M.D. University of Michigan, Ann Arbor, 1894; for twenty-eight years a practitioner of Romulus, Mich.; postmaster of that town and a member of the school board; died at the home of his cousin in Detroit, September 14.

A. Marshall Stephens, M.D. Hahnemann Medical College, Chicago, 1884; formerly a clergyman and member of the faculty of Hamline University; died at his home in Red Wing, Minn., September 21, from cerebral hemorrhage, aged 71.

Edmunds Marshall Bloomfield, M.D. University of Michigan, Ann Arbor, 1869; formerly a Fellow of the American Medical Association; a member of the Indiana State Medical Association; died recently at his home in Peru, Ind., aged 72.

Alexander M. Todd (license, Colorado, 1893); said to have been a graduate of the University of Iowa, Iowa City, and a practitioner for more than forty-three years; died in the Denver County Hospital, September 17, aged 68.

Horatio Henry Brown, M.D. University of La Salle, Sewanee, Tenn., 1898; a member of the Tennessee Medical Association; formerly of Sharon, Tenn.; died at his home in Jackson, Tenn., October 5, from uremia, aged 42.

Richard Dulaney Leith, M.D. College of Physicians and Surgeons, Baltimore, 1877; of Vienna, Va.; died in a sanatorium near Richmond, Va., September 27, from arteriosclerosis, aged 60.

Lingard I. Whiteford, M.D. College of Physicians and Surgeons, Baltimore, 1897; of Fullerton, Md.; died at the home of his mother in Parkville, Baltimore, August 8, aged 35.

Alfred Jefferson Wenner, M.D. Medico-Chirurgical College of Philadelphia, 1894; died at his home in Wilkes-Barre, Pa., September 15, from cerebral hemorrhage, aged 49.

George Washington Truitt, M.D. University of Maryland, Baltimore, 1889; died at his home in Carsonsburg, Md., September 4, from disease of the stomach, aged 61.

Albert B. Wolverton, M.D. Indiana Medical College, Indianapolis, 1873; of Waukarusa, Ind.; died in the Marion Soldiers' Home Hospital, September 14, aged 65.

The Propaganda for Reform

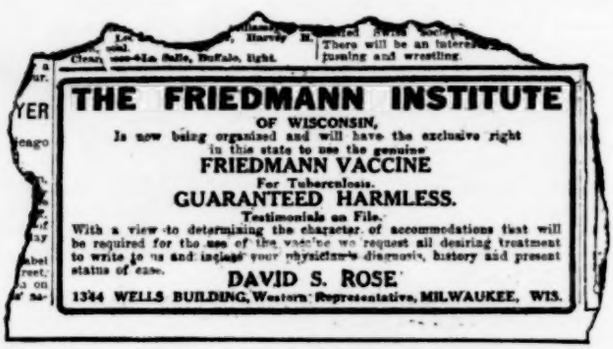
IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE FRIEDMANN "CURE" LIBEL SUIT

An Attempt to Bluff the Journal Into Silence

As we went to press last week, the newspapers announced that a libel suit had been entered against the American Medical Association for $100,000, the libelous articles being those THE JOURNAL has published regarding the Friedmann "cure." The suit is brought in the name of Dr. J. J. Meyer. While the newspapers refer to him as a physician of Milwaukee, he is, as a matter of fact, a New Yorker, who represents the concern that is commercializing the Friedmann "cure," purchased, it is said, by the Eisner-Mendelson Company of New York.

So far, THE JOURNAL has not mentioned the name of any individual connected with the Friedmann exploitation in this country, the wretched business having been dealt with only in a general way. Now it becomes necessary to be specific. This Dr. J. J. Meyer, who suddenly steps into the limelight, seems to be employed by the "Friedmann Institute of New York, Inc.," to go about the country "demonstrating" the administration of the Friedmann product in behalf of the so-called Friedmann institutes. The "Friedmann Institute of New York, Inc.," is located at 90 West Street—the address of the Eisner-Mendelson Company, the reported purchasers of Friedmann's "cure." The letters sent out by the "Friedmann Institute of New York, Inc.," are signed by Moritz Eisner, president of the Eisner-Mendelson Company. The Eisner circulars describe Meyer as a "specialist in the administration of Friedmann's vaccine." In selling his professional services to aid and abet the Friedmann institutes in their methods of exploiting the tuberculous, Meyer disgraces the name of physician and deserves to be classed with other "consumption cure" promoters.


There will be an interesting
running and wrestling
THE FRIEDMANN INSTITUTE
OF WISCONSIN,
Is now being organized and will have the exclusive right
in this state to use the genuine
FRIEDMANN VACCINE
For Tuberculosis.
GUARANTEED HARMLESS.
Testimonials on File.
With a view to determining the character of accommodations that will be required for the use of the vaccine we request all desiring treatment to write to us and include your physician's diagnosis, history and present status of case.
DAVID S. ROSE
1344 WELLS BUILDING, Western Representative, MILWAUKEE, WIS.

Photographic reproduction of Rose's advertisement in Milwaukee newspapers. If the stuff really were a cure what should be thought of individuals who would brazenly advertise the "exclusive right" to the use of a remedy for the great white scourge? Note the claim: "Guaranteed harmless!"

Linked with Meyer's name is that of David S. Rose, who appears as one of Meyer's attorneys. Rose is the western representative of the Friedmann concern. He is something of a politician and will be remembered, at least by Wisconsin physicians, as an ex-mayor of Milwaukee; he also will be remembered by some for his connection with the "Twin Buttes Mining Company." In the minds of many Wisconsin physicians, Rose's connection with the Friedmann "cure" will merely confirm the opinions which they already hold, of both the man and the "cure." Rose has been writing to the Milwaukee newspapers, thus getting some free advertising both for the Friedmann "cure" and incidentally for David S. Rose. He claims to be an "authority on this subject and entitled to be considered as such." Rose tells the public that the Friedmann cure is a success! Physicians sufficiently expert to be employed by the United States government have declared otherwise. Rose expresses great confidence in the "cure"! A committee of the foremost physicians in Canada thoroughly investigated it and declared that "nothing has been found to justify any confidence in the remedy." Rose is enthusiastic in his praise of the "serum"! German physicians generally, and the Berlin profession in particular, condemn it. Rose thinks it a great therapeutic advance! Physicians from the Rhode Island State Sanatorium, reporting the results in 120 cases, state that patients who took the Friedmann "treatment" were worse off than if they had taken ordinary sanatorium treatment. The preposterousness of such a man as Rose posing as an authority on a subject of this sort ought to be evident to the public. Rose may be an authority on ward politics, he doubtless knows a good deal about mining propositions, and as a general all-around salesman he unquestionably has the advantage of physicians. When it comes to therapeutic products, however, he knows just as much about them as the veriest street-corner pedler who dispenses Dr. Quack's Sure Specific—and no more. That the defenders of the Friedmann "cure" are men of this type speaks volumes.

When the fallacy—if not fraudulence—and the danger of Friedmann's remedy came to be fully realized, it seemed evident that no high-class firm would have anything to do with the exploitation of the product. And none has. According to reports, the concern with which Friedmann finally concluded his commercial "dicker" was that of the Eisner-Mendelson Company of New York. It is not a company that from its history would inspire confidence. First incorporated in 1886 under the laws of Pennsylvania, it seems to have gone out of existence in 1892, to be immediately reincorporated under the same name in West Virginia. In 1900 the courts sustained an award of damages against the company for trade piracy. The company put on the American market a mineral water, the bottle and label of which infringed the rights of the owners of a well-known aperient water. The court declared that the company intentionally imitated the label "for the purpose of obtaining . . . a part of the good-will which the —— water had gained." The court went on to say that there was "nothing to show that it was not a case of undisguised piracy." The Eisner concern was assessed damages to the extent of approximately $30,000. In 1902 the company was again reincorporated, this time under the laws of New York. Still later—in 1907—there seems to have been one more reorganization, again under the same name but this time in the state of Maine! At various times the company has attempted to sell its stock to physicians and as late as May, 1913, a stock and bond concern of Chicago circularized physicians in a similar attempt, stating as an inducement, that "this company has lately acquired the Friedmann cure." It seems entirely fitting that such a concern should be the one to exploit Friedmann's grossly commercialized "cure."

THE JOURNAL is ready to meet in a court of law, on the proposition laid down, any individual, company or "institute" that is commercially exploiting the Friedmann "cure." It would be delighted to have the opportunity. But it will never be given the chance as, in its opinion, the present suit is a mere bluff. If the exploiters of the tuberculous think that they can intimidate THE JOURNAL of the American Medical Association from warning the consumptives of the country against the present disgraceful commercialization of the Friedmann "cure," they are badly mistaken.

ABSORBINE, JR.

Young's Panacea for Earthly Ills

Absorbine, Jr., is a liniment sold by W. F. Young, P.D.F. (whatever these letters may mean), Springfield, Mass. Like most "patent medicines," the claims made for Absorbine, Jr., seem to be limited chiefly by the legal restrictions on untruthfulness. Not long ago the label read:

"Absorbine, Jr., removes any soft bunch without blistering or inconvenience."

Now the "lie direct" has made way for the "lie with circumstance," and the later label reads:

"Absorbine, Jr. To remove soft bunches without blistering or inconvenience."

Absorbine, Jr., also used to "cure"—on the label—such things as goiter, rupture, orchitis and tumors. By inference, it still does so. In the booklet that comes with the bottle we used to read, under the title "A Discovery of Importance," this statement:

"Absorbine, Jr., the Only Remedy Known that Positively Cures Varicose Veins. . . ."

Now, under the same heading, we read:

"Absorbine, Jr., the Best Known Safe and Successful Remedy for Treating Varicose Veins. . . ."

Even in the 1913 packages of Absorbine, Jr., the stuff is inferentially sold as a cure for the following conditions: Rheumatism, neuralgia, headache, varicocele, orchitis, toothache, corns, goiter, dandruff, "catarrh," hay fever, piles, elephantiasis, milk leg, and several other conditions. In connection with the liniment, Young also advertises, in the booklet that is wrapped around the bottle, his "Combination Tablets No. 3." These are said to be a "homeopathic combination,"

The evolution of a label! Three bottles of "Absorbine, Jr.," in varying stages of truthfulness. Note that the oldest bottle bears the legend: "Contains 50% Alcohol." In the stuff as now sold acetone takes the place of alcohol.

which is said to "act specifically on the entire reproductive and nervous systems . . ." Young's booklet gives the impression that what "Combination Tablets No. 3" will not do is hardly worth mentioning. Nervous debility, uterine displacements, gonorrhea, carbuncles, aneurysm, goiter—these are but a few of the conditions that Young's Combination Tablets No. 3 will "overcome."

Both the carton in which Absorbine, Jr., comes and the booklet around the bottle contain a "reprint of a report of the Iamatological Bureau on the action of Absorbine, Jr." This sounds imposing and, from the prominence given it by W. F. Young, P.D.F., is doubtless intended to be imposing. The report is by one Willard H. Morse, M.D., "Consulting Chemist and Therapeutist, Fellow of the Society of Science (London), American Director of Bureau of Materia Medica, etc."

As THE JOURNAL has said many, many times, Willard H. Morse is one of those parasites on quackery that furnish fake analytical reports. The fact that he is a "Fellow" of the "Society of Science, Letters and Art (London)" in itself arouses suspicion, for this so-called society is a seriocomic fraud to which quacks and others pay one guinea ($5) for the purpose of writing after their names the magic letters "F.S.Sc. (Lond.)." There may be a great many medical frauds that Morse has not reported favorably on, but we do not know of them. Epilepsy cures, tobacco-habit cures, consumption cures, fake dietary systems, frauds like the Oxydonor, Duffy's Malt Whiskey, Manola, Oleozone and the Ideal Sight Restorer—these are but some of the things for which Willard H. Morse, M.D., F.S.Sc. (Lond.), stands professional sponsor. How much the manufacturers of Absorbine, Jr., had to pay Willard H. Morse for his report we do not know, but whatever the amount, it was not worth it. Reports emanating from Morse's "bureau" are pretty rotten props for anything to rest on.

A bottle of Absorbine, Jr., was purchased in the open market not long ago and examined in the Association's laboratory. The chemist's report:

"Absorbine, Jr., is a clear, bright green liquid having a strong, penetrating, mint-like odor. From our examination it seems that the product is an acetone extract of some plant, probably wormwood, with the possible addition of some oil of sassafras and menthol. A product almost identical in physical appearance may be made from the following formula:

Oil of wormwood	1 dram
Oil of sassafras	16 minims
Menthol	15 grains
Acetone, sufficient to make	27 drams

Absorbine, Jr., is but another example of those fraudulent methods of exploitation that seem inseparable from the "patent medicine" business. Needless to say the stuff never cured a case of goiter or rheumatism or elephantiasis or hydrocele or varicose veins. Neither did "Young's Combination Tablets No. 3" ever "overcome" uterine displacements, gonorrhea or syphilis.

If Absorbine, Jr., were put on the market under a nonproprietary name and truthfully exploited, there would be very little of it sold. But enveloped in the mystery of secrecy and advertised with a reckless disregard for truth it, no doubt, is a money-maker. As sold at present, it is a fraud.

THE ARMY AND NAVY MEDICAL RECORD

A Fraudulent Publication Whose Editorial Opinions Are for Sale

Whenever a business assumes certain proportions, subsidiary businesses spring up to cater to the needs of the larger enterprise. For some years the nostrum business has grown so large that it has furnished a more or less precarious life for many individuals who have catered to it. There are, for instance, men whose trade it is to obtain testimonials; others, claiming a long string of imposing degrees, will furnish fake reports and bogus analyses; still others issue at irregular intervals publications with high-sounding names which sell editorial indorsement to the products of concerns such as are willing to pay the price asked. "Journals" of this type have been called to the attention of our readers at different times; the *New York Health Journal* and the *United States Health Reports* come to mind at this moment. Both of these had their day and died a natural death, as all such publications must when once the public is cognizant of their true character.

TWO LETTERS

More recently the attention of THE JOURNAL has been called to a publication calling itself the *Army and Navy Medical Record*. A physician in the South sends a letter he had received from the *Army and Navy Medical Record* reading as follows:

"We have had many favorable reports reach us relative to your most excellent institution, and, as you are doubtless aware, we come in direct contact with a large number of Army and Navy and other government attachés who have sons that they desire to provide with a medical education combined with the higher course included in your up-to-date laboratory methods and the sciences incidental to clinical medical practice.

"If you will regard the proposition as confidential, we will agree to carry a one-fourth page advertisement of your university at the nominal rate of $38 per year, provided this amount is forwarded in

advance at the time copy is furnished; and *we will further promise to editorially indorse and recommend your school and its methods without qualification or exception.* [Our italics.—ED.] This article you should be able to use (and are authorized to do so) after publication for advertising purposes.

"We will also be able, and are willing, to furnish you with a desirable list of probable candidates from time to time.

"Kindly let us hear from you at once, if interested, and oblige,

"Yours with best wishes,

"THE ARMY AND NAVY MEDICAL RECORD,
"Arthur G. Lewis, Managing Editor."

The physician to whom this was addressed made a notation on the letter to the effect that "this looks crooked." A few weeks later, Dr. V. C. Vaughan, dean of the University of Michigan, Department of Medicine and Surgery, sent in a letter from the *Army and Navy Medical Record* which he had received in his official capacity at the university. Here is the letter; again the italics are ours:

"We are gratified to advise you that in our efforts to select a strictly ethical and high-grade institution of medicine that this magazine could consistently indorse and recommend, we have decided on the University of Michigan, Department of Medicine and Surgery, as the institution in your territory to whom our special publicity concession will be made this year.

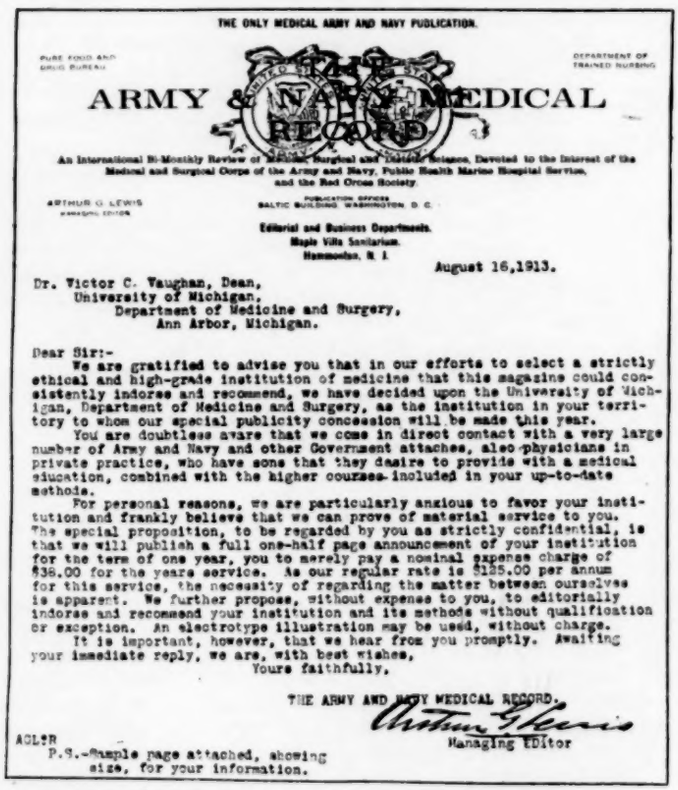
"You are doubtless aware that we come in direct contact with a very large number of Army and Navy and other government attachés, also physicians in private practice, who have sons that they desire to provide with a medical education, combined with the higher courses included in your up-to-date methods.

"For personal reasons, we are particularly anxious to favor your institution, and frankly believe that we can prove of material service to you. The special proposition, to be regarded by you as strictly confidential, is that we will publish a full one-half page announcement of your institution for the term of one year, you to merely pay a nominal expense charge of $38 for the year's service. As our regular rate is $125 per annum for this service, *the necessity of regarding the matter between ourselves is apparent.* [Transparently so.—ED.] We further propose, without expense to you, to editorially indorse and recommend your institution and its methods without qualification or exception. An electrotype illustration may be used, without charge.

"It is important, however, that we hear from you promptly Awaiting your immediate reply, we are, with best wishes,

"Yours faithfully,

"THE ARMY AND NAVY MEDICAL RECORD,
"Arthur G. Lewis, Managing Editor."



THE ONLY MEDICAL ARMY AND NAVY PUBLICATION.

PURE FOOD AND DRUG BUREAU — DEPARTMENT OF TRAINED NURSING

ARMY & NAVY MEDICAL RECORD

An International Bi-Monthly Review of Medical, Surgical and Sanitary Science, Devoted to the Interest of the Medical and Surgical Corps of the Army and Navy, Public Health Marine Hospital Service, and the Red Cross Society

ARTHUR G. LEWIS, MANAGING EDITOR — PUBLICATION OFFICE, BALTIC BUILDING, WASHINGTON, D. C.

Editorial and Business Departments,
Maple Villa Sanitarium,
Hammonton, N. J.

August 16,1913.

Dr. Victor C. Vaughan, Dean,
University of Michigan,
Department of Medicine and Surgery,
Ann Arbor, Michigan.

Dear Sir:-

We are gratified to advise you that in our efforts to select a strictly ethical and high-grade institution of medicine that this magazine could consistently indorse and recommend, we have decided upon the University of Michigan, Department of Medicine and Surgery, as the institution in your territory to whom our special publicity concession will be made this year.

You are doubtless aware that we come in direct contact with a very large number of Army and Navy and other Government attaches, also physicians in private practice, who have sons that they desire to provide with a medical education, combined with the higher courses included in your up-to-date methods.

For personal reasons, we are particularly anxious to favor your institution and frankly believe that we can prove of material service to you. The special proposition, to be regarded by you as strictly confidential, is that we will publish a full one-half page announcement of your institution for the term of one year, you to merely pay a nominal expense charge of $38.00 for the years service. As our regular rate is $125.00 per annum for this service, the necessity of regarding the matter between ourselves is apparent. We further propose, without expense to you, to editorially indorse and recommend your institution and its methods without qualification or exception. An electrotype illustration may be used, without charge.

It is important, however, that we hear from you promptly. Awaiting your immediate reply, we are, with best wishes,

Yours faithfully,

THE ARMY AND NAVY MEDICAL RECORD,
Arthur G. Lewis
Managing EDitor

AGL:R

P.S.-Sample page attached, showing size, for your information.

Photographic facsimile of a letter sent by the *Army and Navy Medical Record* to the dean of University of Michigan, Department of Medicine and Surgery, offering one hundred and twenty-five dollars' worth of advertising space for a "nominal" thirty-eight dollars —with editorial indorsements and recommendations thrown in for good measure!

Dr. Vaughan, in forwarding the matter to THE JOURNAL, wrote that on receipt of the offer just given, he "was uncertain whether its writer was a knave or a fool." After inquiring into the matter somewhat thoroughly, he concluded that "the managing editor of the *Army and Navy Medical Record* is both a knave and a fool."

THE ARMY AND NAVY MAGAZINE

THE JOURNAL had the *Army and Navy Medical Record* under investigation before these two letters were received and, as a result, the following facts seem to be pretty well substantiated. Herbert C. Lewis, with his brother, Arthur G., conducted from Washington, D. C., a publication called the *Army and Navy Magazine.* In THE JOURNAL'S nostrum file there is a booklet put out by the Renova Distributing Company describing the wonderful virtues of its product, "Anti-Jag," which, as its name might intimate, is a "liquor cure" of the fake variety. One page of this booklet is given over to what purports to be "A Letter from a Great Magazine Editor." The letter is dated June 19, 1900, from Washington, D. C., and says that "the editor of the *Army and Navy Magazine* takes pleasure in stating that from his own personal knowledge he has found 'Anti-Jag' to be one of the most reliable medicines ever introduced for the permanent cure of drunkenness." And more to the same effect. The letter is signed "Herbert C. Lewis, editor."

The publishing offices of the *Army and Navy Magazine* are at 606 F Street, N. W., Washington, D. C. The building at this address is known as the Baltic Building. Herbert C. Lewis is said to be a printer by trade.

The *Army and Navy Medical Record* seems to have been started within the last few months by Arthur G. Lewis. It does business from two addresses, the Baltic Building, Washington, D. C., and the Maple Villa Sanitarium, Hammonton, N. J. Lewis is said to have purchased the Maple Villa Sanitarium recently, but apparently his chief source of income is the *Army and Navy Medical Record.* He is alleged to have claimed that some medical officials of the government are interested with him in this publication but that these officials do not wish their names known. We do not blame them.

ADVERTISEMENTS AS EDITORIALS

A glance through two issues of the *Army and Navy Medical Record* makes perfectly plain the character of the publication. The January-February, 1913, number leads off with articles by well-known medical officers in the Army, the Navy and the Public Health Service. These have been copied from other publications. Then comes an editorial entitled "A Much Needed Dietary Reform," devoted to the laudation of "Postum," the widely advertised coffee substitute. Following this is an editorial on "The Philosophy of Hypnotics" in which aconitine, saline laxative and digitalin are each given a "boost." Then comes an "original article" (save the mark!) entitled "The Physiological Pathology of Consumption." This is by "Alfred S. Gubb, M.D., L.R.C.P., London, M.R.C.S., Eng., D.P.H., etc. etc., Aix-les-Bains, Savoie, France." Two pages are devoted to this. The "joker" appears in the third paragraph from the end—Fellow's Syrup of Hypophosphites. Dioxogen receives more than three pages of editorial mention under the caption "The Sterilization of Milk with Dioxogen." Under "Another New Electrical Wonder—Magnified Sound," the "Acousticon" is given a two-and-a-quarter page write-up. "What Wise Men Wear" is the title of a four-page article—unsigned—devoted to the laudation of suspensories in general and the "O-P-C Suspensory" in particular. Dr. H. F. Boatman, Los Angeles, contributes a short article on "A Case of Advanced Pulmonic Tuberculosis Treated with Injections of Dioradin," while our good old friend Willard H. Morse, M.D., "F.S.Sc. (Lond.)," the champion fake-testimonial-giver of the country, writes more or less entertainingly on "Putting on a Mustard Plaster." The article has nothing to do with mustard plasters but has a good deal to do with "Zumota," a nostrum recommended as a substitute for the mustard plaster. These are but a few of the nostrums to which the editorial and reading pages of the *Army and Navy Medical Record* are devoted.

In the June-July issue, Arthur G. Lewis becomes bolder. The leading article is entitled "First Aid in the Navy," by C. F. Stokes, Surgeon-General, United States Navy. There is nothing to indicate that this article was not contributed to the *Army and Navy Medical Record* by its author. As a matter of fact, it originally appeared in an official publication, the *United States Naval Medical Bulletin* for January, 1913, and was reprinted by Lewis without credit and without permission. Following the article by Dr. Stokes is another, unsigned, entitled "The Passing of 'The Pie Habit.'" This describes the surprise of the students of Harvard University at being served breakfast cereals instead of pie at their noonday meal and suggests that "Shredded Wheat Biscuits" make a "delicious dessert." A two-and-a-half page article on the "Danger of Corrosive Sublimate in Vaginal Douche" is reprinted from the *Lancet-Clinic* of September, 1903. The reason for resurrecting this ten-year-old article becomes apparent before one gets half through it. It deals not so much with the danger of corrosive sublimate as with the marvelous—alleged—properties of Tyree's Antiseptic Powder. Dr. Claude C. Keeler, Denver, has a three-page article on the "Medical Treatment of Pulmonary Tuberculosis." The "medical treatment" referred to is Waterbury's Compound. An editorial entitled "One Notch Ahead of Morphin" is devoted to that vicious morphin solution sold under the proprietary name "Papine." Another on "The Treatment of Catarrh by Palliatives and Curatives" deals with a widely advertised "patent medicine," "Kondon's Catarrhal Jelly." What appears to be a contributed article by Charles Wardell Stiles of the United States Public Health Service on "Country Schools and Rural Sanitation" has really been "lifted" from an official publication without credit and, needless to say, without Dr. Stiles' permission.

But medicinal preparations are not the only things to which the *Army and Navy Medical Record* gives editorial indorsement. All advertising matter, apparently, is grist to its mill. Sandwiched in between articles on "Public Health Administrations" and "Important Army Medical Lectures" is a dissertation on "The Millennium of Shirt Construction," in which are sung the virtues of the tailless shirt! A little farther along the Hawaiian pineapple is extolled, while the last pages of the issue are devoted to various banking concerns.

In addition to the advertisements appearing throughout the reading and editorial pages of these two issues of the *Army and Navy Medical Record*, there are a number of display advertisements. There is no reason to suppose, at least in the majority of cases, that the advertisers had the slightest reason to suspect the nature of the *Army and Navy Medical Record*. Several pages are devoted to financial advertisements, there being more than forty banks that have "fallen for" the wiles of Arthur G. Lewis. In view of the letters received by the deans of medical colleges and other educational institutions, the display advertisements of schools and colleges have a special interest to physicians. Schools for girls, polytechnics, colleges of music, veterinary, dental and medical schools—all are to be found in this cosmopolitan publication.

Among the therapeutic products advertised—in the advertising pages—are:

Fellows' Syrup of Hypophosphites	1	cover page
Sherman's Bacterial Vaccines	1	page
Kondon's Catarrhal Jelly	½	page
Expurgo Anti-Diabetes	½	page
Laxol	½	page
Campho Phénique	½	page
Palpebrine	½	page
Zumota	½	page
Sanmetto	¼	page

While in the reading pages the following products are puffed:

Tyree's Antiseptic Powder.
Waterbury's Compound.
Papine
Kondon's Catarrhal Jelly.
Ranier Natural Soap.
Iodia (Battle).
Creo-Derma.
Fellows' Syrup of Hypophosphites.
Tannalbin.
Expurgo Anti-Diabetes.
Zumota.
Sulfothen.
Dioxogen.
Palpebrine.
Bannerman's Intravenous Solution.
Daniel's Concentrated Tincture of Passiflora.
Peacock's Bromides.
Aletris Cordial Rio.
Gonosan.
Digipuratum.
Dioradin.
Pepto-Fer.
Lactol.
Campho Phénique.

Summed up: The *Army and Navy Medical Record* is but another of the parasites of quackery. It is not entered as second-class matter and it has probably no bona-fide circulation. While it is claimed to be "Devoted to the Interest of the Medical and Surgical Corps of the Army and Navy, the Public Health Marine Hospital Service and the Red Cross Society" it is actually devoted to none of these. It *is* devoted to the exploitation of the advertising public for the special financial benefit of the man who calls himself its editor—Arthur G. Lewis. Advertising contracts are obtained under false and fraudulent pretenses. In brief, Arthur G. Lewis is using the good name of the various medical services of the United States government to further his swindling operations. He has written letters to honorable physicians making dishonest and insulting propositions to deceive and defraud the public. Editorial indorsements of the *Army and Navy Medical Record* mean nothing except that money has been paid for them. In short, the *Army and Navy Medical Record* is a fraud, and its "editor," Arthur G. Lewis, a faker.

Correspondence

The Parasite of Rabies

To the Editor:—The paper of Noguchi on the "Cultivation of the Parasite of Rabies (*Jour. Exper. Med.*, 1913, xviii, 314; abstr., THE JOURNAL A. M. A., Sept. 20, 1913, p. 993), has a special interest for the student of hydrophobia. Is the cause indeed a parasite, or is it, as Ferran supposed, a ferment? Are the Negri bodies parasites, or do they simply enclose an invisible germ, the true parasite, of which the Negri corpuscle is the outward and visible expression? This view, which is probably at present the most illuminating, is represented by two admired and popular authors, Babes, who regards the Negri inclusions as the reaction of the cell to the parasite, and Prowazek, who classifies the parasite among the *Chlamydozoa*. Both the parasite and the Negri bodies have been connected by some writers with the *Protozoa;* but in view of the fact that the Negri corpuscles are too large to pass through a filter, as the true parasite does, and that bodies similar and in fact identical have been found in healthy panthers by Cornwall, and in the fresh brains of cats by Luzzani, it will be understood that not much help could be obtained from them by any one who desired to form a critical estimate of the morphology of the rabies germ.

Noguchi, who appears to think that it is a protozoon, presents his theory in a slight setting of practical circumstances. This does not mean that he finds absolute certainty in his results, but rather that he would render further experiments convincing by backing them with comprehensive details. In his cultures of "street," "fixed" and "passage" virus, he observed "very minute granular and somewhat coarser pleomorphic chromatoid bodies." In "fixed" virus he found "nucleated round or oval bodies surrounded with membranes totally different from the minuter granular bodies," though they occur in the same culture. "The center is nuclear and the membrane is distinct and highly refractive." By inoculating animals with cultures of the "granular, pleomorphic or nucleated bodies, rabies has been reproduced in dogs, rabbits and guinea-pigs." It is not easy, it must be confessed, to distinguish between these bodies, but his nucleated oval bodies, surrounded by a very refractive membrane, resemble in their morphology the protozoa rather than the bacteria.

From this point of view, the present work of Noguchi is less disentangled from the early work of Pasteur, Roux, Memmo, Babes, Bruschettini, Grigorjew, and Rivolta than could be wished, for it is constructed on lines similar to theirs and Busila's. (*Compt. rend. Soc. de biol.*, July 31, 1908.) Busila's work, in fact, gives a foretaste of what may come, and is worth an attentive study, though it illustrates the limitations rather than the powers of the experimenter. He was able to find in the nerve centers and in the cerebrospinal fluid of animals infected with "fixed" virus a motile, sporing

bacterium which grew on ordinary mediums, stained with Gram, and lived through 250 generations without losing its virulence. Cultures of this organism were first heated to 110 and subsequently injected into guinea-pigs, rabbits and dogs. The animals became rabid and their brains showed Negri bodies, but the most remarkable circumstance was the period of incubation, which was exactly what it ought to be after a genuine infection, being from seven to fifteen days after cerebral inoculation, and from fifteen days to three months after inoculation under the skin. Moreover, the brains of these animals produced rabies, which is certainly a point of primary importance.

Unfortunately, it is impossible to read these results with conviction. To Babes, who reviewed them without success, they seemed opposed to all our notions of the nature of infectious diseases ("Traité de la rage," p. 255). He could not confirm them. As an experiment in bacteriology, there is in their favor this fact, that they give a hint of the difficulties of the subject, of the difficulty under which all investigation has labored from the time when Hallier discovered in the blood of rabid animals his *Lyssophyton suspectum* (*Ztschr. f. Parasitenkunde*, 1869, i, 301), or Memmo his *Blastomycetes*, or Pasteur his granules. Others, too, have associated rabies with a bacterium, as, for example, Mottet and Protopopoff (*Russk. Vratch.*, 1887, viii), who found a microbe which grew on ordinary mediums which produced paralytic rabies in animals. Though these experiments are interesting and curious, they are not convincing, and, moreover, they have failed to evolve the superb technic that will be indispensable to the man who is to isolate the true germ of rabies. It is probable that we have now passed through the crude phase of this investigation. The contribution of Noguchi is perhaps the nearest approach to the solution of the problem, unless the recent researches made by Luzzani (*Pathologica*, 1912-1913, v, 253) and Andreyewsky (*Sbornik. rabot. v. pam. I. M. Sadovskavo*, 1912, ii, 68) have attained the absolute solution.

PAUL BARTHOLOW, M.D., New York.

Comment on Sex Hygiene

To the Editor:—Your summary of newspaper comments on the problem of instruction in sex hygiene (Medical Economics, THE JOURNAL, Oct. 18, 1913, p. 1477), shows that we are one step ahead of the former generation—we recognize generally that it is a problem. It would be well, however, for the reformer, physician or layman, to recognize several other facts. In the first place, the greatest obstacle to the proper handling of the subject lies in the home. From my experience with large numbers of boys in private schools I know that the average boy of this type has, up to the age of 14 at least, no correct idea of sexual anatomy or physiology, while the public-school boy, though usually more wise, obtains his wisdom from a dangerous source. I have known many boys to whom another boy naked is a pleasing curiosity, while but very few know how animals propagate. This ignorance is of course due to the prudish reticence of the parents, and the curse of it is that the child of to-day is no further advanced than were the children of former generations. To say then that this question should be left to the home is to drop the matter entirely. We cannot expect aid from the very source which is presenting the obstacle.

It is therefore clear that it is up to the schools as the only organized medium available. But it is also plain that to make a sudden jump from the reticence of the home on all matters pertaining to sex to a direct discussion of sex hygiene in the schools would be as dangerous to the child as it would be abhorrent to the parent. If we could only stop crying reform, stop the warring between the sentiment surrounding innocence and the excitement over the moral results of ignorance, and treat the question from the point of view of educational science, the matter would be simple. Give the children more natural science taught by competent teachers—botany to the youngest, biology to the older ones, and anatomy and physiology to those of 10 or 12. The sexual side should not be emphasized but taken as a matter of course. With this foundation the teaching of sexual questions as such would cease to be a nightmare to parents or a side-show to children. Most important of all, we might reasonably hope that from such a course of study the parents of the next generation, who are the children of to-day, will treat the whole matter rationally, will make their children feel that the truths of sex are not an awful thing of mystery and shame that will be revealed some time in the dim future, but, like the working of the bowels, are things of great interest and importance, though they are not to be discussed at the dinner-table.

I have known boys who were fortunate enough to be brought up in homes in which they received proper instruction and explanation, and their true modesty and frank understanding of things sexual were distinctly refreshing after the prudery and morbid curiosity which are perfectly natural in the ignorant child. W. B. H., Boston.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ACQUIRED IMMUNITY TO SMALL-POX

To the Editor:—1. Can acquired immunity to small-pox be transmitted to the offspring?

2. Does small-pox protect against bovine vaccination?

The following examples will bring out the reasons for the preceding questions:

FAMILY A.—Five in the family, father previously vaccinated, mother unvaccinated, children exposed. One child had preliminary symptoms followed by slight eruption consisting of few pimples, one or two of which were pustular. Eruption lasted about a week, child not sick. The father and children were vaccinated at the same time. All four vaccinations were unsuccessful. Mother refused vaccination. No other cases in this family.

FAMILY B.—Five members. Father previously vaccinated successfully when a child, also four or five times since without result. Children exposed. Mother and the three children were vaccinated. In two of the children vaccination was unsuccessful, also when repeated.

FAMILY C.—Six members. Father previously vaccinated successfully when a child, also four times since without result. Mother has been vaccinated four times without result. Mother and four children vaccinated; two of the children without result; vaccination repeated on these two without result. This makes the third time for one of the children without effect.

FAMILY D.—Seven members. Given as a control. All vaccinated, six successfully.

ROBERT P. STARK, M.D., Allegan, Mich.

ANSWER.—1. Many cases seem to indicate the possibility of the transmission of immunity to small-pox, but the phenomenon is quite exceptional.

2. Yes.

CONTRACTURE OF FINGERS IN HEMIPLEGIA

To the Editor:—1. Would the lengthening of the flexor tendons of the fingers in a case of hemiplegia of a year's standing in which the flexors overbalance the extensors be a procedure of much hope? The hand, when extended on the wrist, causes the flexion of the fingers into the palm. The joints are still seemingly normal. The power of flexion is good, but the patient cannot open his hand enough to grasp any large object well.

2. Do the tendons of the fingers unite when severed, like the Achilles tendon?

3. Would a lengthening operation or a division be the better?

4. Would there be any great danger of infection if no silk, for instance, were left in? W. E. B., M.D.

ANSWER.—1. We do not think that lengthening of the flexor tendons of the fingers in a case of hemiplegia would be of any use in overcoming the contracture, due to paralysis. If there were no paralysis present the tendons could be lengthened with good result.

2. Tendons of the fingers unite when severed the same as other tendons, provided they are properly cared for.

3. If an operation were advisable it would be better to lengthen the tendons rather than divide them, as the retraction after simple division is too great and union might fail on account of wide separation of the ends.

4. The best material for suturing or lengthening tendons, is silk. The silk should be prepared according to Lange's method, which consists in boiling it in 1:1,000 mercuric chlorid solution. Such silk would remain indefinitely without danger of infection, provided the operation was aseptically done.

DIFFERENCE BETWEEN HEREDITARY AND CONGENITAL SYPHILIS

To the Editor:—What is the essential difference between hereditary and congenital syphilis? W. R. A., Lincoln, Neb.

ANSWER.—The terms are used interchangeably to indicate the condition of syphilitic infection manifest at birth. Syphilitic disease might be latent in the infant at birth, and developing subsequently could not be called congenital, but it would still be hereditary. Some would go so far as to say that syphilis cannot be hereditary on the assumption that no disease can be inherited. This is an unproved assumption which it would be unprofitable to discuss. We may say at least that it is still generally assumed that diseases can be inherited or transmitted from parent to child, and the important question is whether syphilis can be so transmitted. The discovery of the *Spirochaeta pallida* has made it possible to explain the way in which this transmission can be brought about. Experimental observations show that the semen may contain the spirochetes and hence the disease may be directly transmitted from the father to the fetus in conception. The mother may transmit the disease either by the presence of the germs in the ovum or by infection of the placenta, or the passage of the spirochetes from the blood of the mother to the blood of the fetus. The mother may herself become infected from the fetus, although the proof of this occurrence is not positive. The long period of latency during which the germs of inherited syphilis sometimes lie dormant lend some support to the hereditary character of those cases which have been observed in the third generation.

WORKS ON HELMINTHOLOGY

To the Editor:—What are some of the best and recent works on intestinal parasites, or helminthology? Did not Loos write an exhaustive treatise on this subject? If so, where can it be obtained? W. H. H., Deridder, La.

ANSWER.—The following works may be referred to. We are unable to find any record of a book written by Loos on this subject.

Braun, M.: Animal Parasites in Man, Wood. Price, $5.
Braun and Lube: Practical Parasitology, Wood. Price, $3.50.
Welter, Carl: Ein Fall von Balantidium Coli im Darmkanal des Menschen, Bonn, Ludwig, 1912.
Stiles, C. W., and Garrison, P. E.: A Statistical Study of the Prevalence of Intestinal Worms in Man, *Hyg. Lab. Bull.*, 28.
Stiles, C. W.: A Statistical Study of the Intestinal Parasites of Five Hundred White Male Patients at the U. S. Government Hospital for the Insane, *Hyg. Lab. Bull.*, 13. (Cannot be obtained from government.)
Stiles, C. W.: Illustrated Key to the Trematode Parasites of Man, *Hyg. Lab. Bull.*, 17. (Cannot be obtained from government.)
Stiles, C. W., and Hassall, A.: Trematoda and Trematode Diseases, Index-Catalogue of Medical and Veterinary Zoology, *Hyg. Lab. Bull.*, 37. (Can be obtained from Superintendent of Documents, Government Printing Office, Washington.)
Stiles, C. W., and Hassall, A.: Cestoda and Cestodana, Index-Catalogue of Medical and Veterinary Zoology *Hyg. Lab. Bull.*, 85. (Address the Surgeon-General, U. S. Public Health Service, Washington, D. C., for this.)

Bulletins which cannot be obtained from the government may perhaps be found at medical libraries.

MINE CONDITIONS DELETERIOUS TO THE RESPIRATORY SYSTEM

To the Editor:—Please refer me to literature on mine conditions (gases, dust, etc.) deleterious to the respiratory system.
A. M. GIDDINGS, Crosby, Wyo.

ANSWER.—The following may be referred to:

Oliver, T.: Dangerous Trades. New York, Dutton. Price, $8.
Systematic Prevention of Mine Accidents, THE JOURNAL, Current Comment, April 5, 1913, p. 1081.
Committee on Resuscitation from Mine Gases, THE JOURNAL, Proceedings of Minneapolis Session, June 21, 1913, p. 2002.
Sommerfeldt, T.: Danger from Explosion of Gases in Mining, *Norsk Mag. f. Laegevidensk.*, February, 1913; abstr. in THE JOURNAL, March 15, 1913, p. 874.
Oliver, T.: Dust and Fumes, the Foes of Industry, THE JOURNAL, Society Proceedings, Oct. 5, 1912, p. 1315.
Lindemann, W.: Accidents and Diseases of Miners and Tunnel Workers, THE JOURNAL, Society Proceedings, Oct. 5, 1912, p. 1315.
Haynes, J. R.: Death in Mines of America Reasons for a Federal Commission, *South. California Pract.*, January, 1912.

Further information may be obtained by communicating with the American Mine Safety Association, Pittsburgh, Pa., and the American Association for Labor Legislation, 1 Madison Avenue, New York City.

FIBROLYSIN

To the Editor:—Please give me any information that you may have on fibrolysin. S. L. W.

ANSWER.—Fibrolysin is a name given to a solution of thiosinamin sodium salicylate, and is described in N. N. R., page 258. This substance, it is claimed, has the power of causing the absorption of cicatricial tissues. It has been used for the removal of cicatrices resulting from burns, etc. In some cases it has seemed to be quite successful, although there have been numerous failures.

CORRECTION OF ALGEBRAIC EXPRESSION

To the Editor:—In THE JOURNAL of Sept. 27, 1913, page 1134, second column, second paragraph, fifth line, should not $\sqrt{r^2-y^2}$ read $\sqrt{r^2-y^2}$? J. A. BACHER, M.D., San Jose, Cal.

ANSWER.—Our correspondent is correct, and the latter notation is the right one.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

AN IMPOSSIBLE PROPOSAL

Hon. T. L. Reilly, member of congress from Connecticut, has introduced the following in the House of Representatives:

A bill to create a United States Medical Licensing Board.

Be it enacted by the Senate and House of Representatives of the United States of America in congress assembled, that the president be, and he is hereby, authorized and directed to appoint two medical officers of the United States Army, with a rank of a captain and a major; two medical officers of the United States Navy, with rank of lieutenant and lieutenant commander; and two medical officers of the United States Marine Hospital Corps, with rank of lieutenant and lieutenant commander, to a board to be known as the United States Medical Licensing Board.

SEC. 2. That the terms of the members of the board to be four years each, and the salary of each member thereof to be $4,000 per annum with mileage. Said board shall be in continuous session at Washington when not on duty in various states.

SEC. 3 That all regular licensed medical practitioners of medicine, now holders of a medical diploma and a state license permitting them to practice in the respective states, shall upon the passage of this Act by presenting to said board their medical diploma, their state medical license, and any other diplomas they may have, and upon the payment of the sum of $2 be given a United States license which will permit them to practice their profession of medicine in any state or territory of the United States and its possessions.

SEC. 4. That the United States Licensing Board shall hold its meetings in various cities of the United States and shall examine all newly graduated medical doctors so that they may obtain a United States license, which license will permit them to practice medicine or surgery in any state or territory of the United States and its possessions without any further examination: *Provided*, That the candidate for said license shall fulfill all the requirements of the American Medical Association and shall be an American citizen and present a high-school certificate or its equivalent and shall have a doctor of medicine diploma from a medical college in good standing, as declared by the American Medical Association, and upon the payment of $10 and the filing of certificates of good moral character shall be admitted to examination and upon the passage of said examination shall be granted a United States license, which will permit the holder to practice medicine and surgery in any state or territory of the United States and its possessions.

SEC. 5. That the license may be revoked in case abortions or other unprofessional and criminal acts are performed.

Without questioning the sincerity or good intentions of the introducer of this measure, it must be recognized that the provisions contained in Mr. Reilly's bill are entirely impracticable. In any other nation national regulation of the practice of medicine might not only be considered, but in practically every other civilized nation such national control is in effect. In the United States, however, the regulation of the practice of medicine comes under the police power of the state, and is consequently, under the jurisdiction of state legislatures and not under that of congress. This is a fundamental fact, which has been recognized by all law-making bodies and by all courts, from the United States Supreme Court down. The consideration of any measure by congress, providing for the regulation of the practice of medicine in the states by any federal board, is, therefore, simply a waste of time, as any such measure, even if adopted, would be declared unconstitutional as soon as it came into court.

Aside from this objection, which is, of course, fatal to the bill, criticism might be made of the provision limiting the appointment of members to officers of the government services. A more serious objection, however, is the loose phraseology in Section 4, providing that "the candidate for said license shall fulfill all the requirements of the American Medical Association." There are no specifications as to what requirements are referred to. Certainly, the provision by which an examining board would delegate the formulating of specifications for licenses to a voluntary organization would be most unwise. A similar objection would lie against the provision that recognized medical colleges should be limited to those approved by the American Medical Association. The provision requiring only a high-school certificate for admission is hardly in harmony with the present effort to raise the educational standards of medical schools. Section 5 provides for the revocation of licenses in cases of "unprofessional" acts; but does not specify what acts shall be considered "unprofessional." These criticisms, however, are superfluous, as the provision for federal jurisdiction over the practice of medicine in the various states is essentially unconstitutional, and, consequently, any such bill as that proposed by Mr. Reilly is a legal impossibility. This bill, which deals with an important social problem, was referred to the House Committee on Military Affairs. Such a reference is ridiculous, and only emphasizes the shortcomings of the system of committees in the house and the need of a Committee on Public Health.

THE PRESENT LEGAL STATUS OF OSTEOPATHY

Attention has been called to an error in the issue of THE JOURNAL for September 20, 1913, p. 981. In the article on "The Present Legal Status of Osteopathy," New Hampshire is listed among those states having separate osteopathic boards of examiners. This is incorrect, as a reference to the law will show. The medical practice act of New Hampshire stipulates that its provisions shall not apply to "persons practicing . . massage . . . or any other method of healing if no drugs are employed or surgical operations are performed; provided that such persons do not violate any of the provisions of this act in relation to the use of M.D. or the title of doctor or physician" (Act of 1897, Section 11, as amended by Ch. 1, Session Laws, 1903).

In the same article under the subtitle, "Is Osteopathy the Practice of Medicine?" the several states were listed in accordance with judicial and statutory interpretation of the term "practice of medicine." Under this arrangement, Kentucky was placed among those states which hold osteopathy to be not the practice of medicine. This was on the authority of the decision in Nelson *v.* State, 108 Ky. 769, 50 L. R. A. 383. That case, however, has been negatived by statutory amendment which provides that the words "practice of medicine" in this act shall be held to include the practice of osteopathy. But no such persons may practice without a diploma and they are forbidden "to administer drugs or to perform surgical operations with the knife." This is in accordance with the act of 1904, Section 6.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, State Capitol Bldg., Little Rock, November 11-12. Sec., Dr. W. S. Stuart, Suite 404 Citizens Bank Bldg., Pine Bluff; Homeopathic, Little Rock, November 11. Sec., Dr. Ida J. Brooks, E. 10th St.; Eclectic, Little Rock, November 11. Sec., Dr. C. E. Laws, 712 Garrison Ave., Ft. Smith.

CONNECTICUT: Regular, City Hall, New Haven, November 11. Sec., Dr. Charles A. Tuttle; Homeopathic, New Haven, November 11. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, New Haven, November 11. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Jacksonville, November 12-13. Sec., Dr. J. D. Fernandez.

LOUISIANA: New Orleans, October 27-29. Sec., Dr. A. B. Brown, 34 Cusachs Building; Homeopathic, 702 Macheca Bldg., New Orleans, November 3. Sec., Dr. Edward Harper, New Orleans.

MAINE: City Hall, Portland, November 11-12. Sec., Dr. Frank W. Searle, 776 Congress St.

MISSISSIPPI: Jackson, October 28-29. Sec., Dr. E. H. Galloway, Jackson.

NEBRASKA: Lincoln, November 12-13. Sec., Dr. H. B. Cummins, Seward.

NEVADA: Carson City, November 3. Sec., Dr. S. L. Lee, Carson City.

SOUTH CAROLINA: Columbia, November 11. Sec., Dr. A. Earle Boozer, 1806 Hampton St.

TEXAS: Bender Hotel, Houston, November 11-13. Sec., Dr. W. L. Crosthwait, Suite 1003, Amicable Bldg., Waco.

WEST VIRGINIA: Hotel Chancellor, Parkersburg, November 10. Sec., Dr. S. L. Jepson, Wheeling.

Higher Standards in Michigan

Official word has just been received that, at a recent meeting, the Michigan State Board of Registration in Medicine adopted a resolution increasing the requirement of preliminary education, of those seeking licenses to practice medicine in that state, to one year of collegiate work in addition to a four-year high-school education. The additional year is to include college courses in physics, chemistry, biology and a modern language. This is the fourteenth state in which one or two years of collegiate work now constitutes the minimum preliminary requirement. The complete list follows:

State Licensing Board of	No. of Years Required	Affecting Students Matriculating	Affecting All Applicants
Minnesota	2	1908-09	1912
North Dakota	2	1908-09	1912
Colorado	2	1910-11	1914
Connecticut	1	1910-11	1914
Kansas	1	1910-11	1914
Indiana	2	1910-11	1914
Utah	1	1910-11	1914
Iowa	2	1911-12	1915
South Dakota	2	1911-12	1915
Vermont	1	1912-13	1916
Pennsylvania	1	1913-14	1917
Kentucky	2	1914-15	1918
Michigan	1	1914-15	1918
California	1	1915-16	1919

CHIEF NEEDS FOR AND FUNCTIONS OF THE FEDERATION OF STATE MEDICAL BOARDS*

N. P. COLWELL, M.D.
Secretary of the Council on Medical Education of the American Medical Association

In every country having a standing comparable with that of the United States, the national government, through one or more bureaus, has always kept direct or close control of educational institutions and of the licensing of physicians. As a consequence these matters have always been systematically looked after, medical schools have never been separated from universities, and there never has been the chance for irregular or low-grade institutions calling themselves medical colleges, to gain a foothold; therefore, such institutions have never been known. Every medical college as a rule is the medical department of a government-owned or controlled university, so has always been conducted on the same high plane as other educational institutions. Again, the licensing of physicians seems to have always been in the hands of thoroughly competent officials who have in charge such matters

* From the *Quarterly* of the Federation of State Medical Boards of the United States, October, 1913, p. 20.

for the entire nation, so if a candidate does not present proper credentials, or if he fails to pass the required examinations, he simply cannot procure a license to practice in any part of the country. He must make up his deficiencies or not secure his license.

CONTROL IN THE UNITED STATES

In the United States, on the contrary, the national government assumes no responsibility regarding either education or the licensing of physicians, these matters having been left by the Constitution to the individual states—a responsibility the importance of which even to-day has not been fully realized or fully assumed by many if not by the majority of states. In our forty-nine states there are forty-nine different medical practice acts which, for their enforcement, have been placed in the hands of sixty-two different boards, sometimes two or three to a state! To make the matter still more serious, in seventeen states there are also separate boards having entire authority over osteopaths—an arrangement which doubtless protects them in practicing as they see fit, including surgery and the administration of drugs!

EVILS DUE TO THIS CONFUSION

Is there any wonder, with this confusion, that bogus and low-grade medical schools and schools for every fad in the category grew up like toadstools? Is it a wonder that these heterodox institutions have flooded the country with half-baked, illiterate and incompetent "doctors," who, even though they may have been rejected by one state fortunate enough to have a good law administered by a good board, easily secure licenses in some other state—or if persistent, or if possessing a sufficiently strong political pull, finally succeed in securing a right to prey on the people of the very state where they were rejected in spite of the efforts of the state's valiant defenders?

Through this confusion also we see notorious quacks, abortionists, spurious patent medicine venders and other undesirables finally, if not easily, securing the right to carry on their nefarious practices in some state or other even though they may have been rejected or have had their licenses revoked in one or more other states! Or, even after they have had their licenses revoked by some strong board we sometimes see them brazenly continuing to practice, made immune to prosecution through political affiliations, thus snapping their fingers at the only safeguard the state has placed between the public and these vandals. The protection of the public against such evils *from a national standpoint* is practically a farce and the conditions would be laughable were they not so exceedingly serious. We have very often heard it stated—which is a fact—that the control of these matters "has been left to the police-powers of the various states." True, but how are these "police-powers" working out? States could be named which have established no "police-power" worthy the name, or which permit conditions to exist which are practically intolerable. Many still have ineffective laws and some have fair laws but incompetent political favorites to enforce them, and as a consequence the public have no safeguards; other states have fair laws except that two or three separate boards have been established to carry out their provisions, consequently either all boards are "easy" with their respective followings or serious discriminations result. Even some of the states having the best practice acts for regulating the licensing of physicians have inconsistently provided separate boards for osteopaths (often self-styled "osteopathic physicians").

ONE EDUCATIONAL STANDARD NEEDED

Meanwhile, when are we going to learn—when are our legislators going to learn, that before any method of "healing" can be safely applied to a sick or suffering human being, the "practitioner" must be sufficiently well educated to make a diagnosis, to *know* what disease he is attempting to treat and to *know* whether his particular "specialty" is the one to be used or whether it is the very one most dangerous to the patient? When is the fact going to be recognized that one standard—an educational standard—should be applied *to every* practitioner of the healing art regardless of the particular "system" of treatment he may represent? In fact, the whole mess of fads, diploma mills, low-grade colleges, quacks, impostors and the like never could have been, or could easily have been nipped in the bud had it not been for the politics-ridden and ineffective "police-powers" in many of the states. Take the very best conditions existing in any state and even then the safeguards are less effective than in most European countries. On the other hand, they should be even more effective because of the general confusion in control of these matters throughout the country. I have said "less effective than in most European countries" advisedly. Germany, for example, requires the candidate to have been trained in one of the governmental university medical schools and then requires the passing of an examination unusually severe. Again, I believe it will be acknowledged that in no state is the examination of candidates for license as searching and thorough as that given by the Conjoint Board of England, so ably outlined two years ago by Mr. Frederick G. Hallett, the secretary of the board. The examinations as usually given in this country still lack the searching laboratory and clinical tests which really permit a graduate of a medical school with adequate laboratory and clinical facilities to show his superiority over the candidate trained by the memorizing methods of the low-grade colleges which lack essential equipment. True, some boards have made a beginning, nevertheless almost every candidate, including graduates from some seriously low-grade colleges, succeeds in passing the examination. Of the candidates examined by the Conjoint Board of England there are almost always as many as 28 to 35 per cent. who fail.

STATE BOARD MEMBERS THE GREATEST HOPE

These statements must not for an instant be taken as a reflection on the officers of our state medical licensing boards, many of whom have striven valiantly against almost insurmountable obstacles to do their full duty. On the contrary it is these men above all who have recognized and are familiar with the conditions to which allusion has been made. It is to the men on our state licensing boards chiefly that the nation must look for better safeguards against the evils enumerated. Meanwhile, improvements have been going on for twenty years or more; conditions have been much worse. There is no better place to pay a most deserved tribute to one state board secretary, who, during the twelve years from 1878 to 1890, did more to raise the standards of medical education and medical licensure than any other man of his time. He likewise exposed and caused the closure of some fifty or sixty diploma-mills which prior to that time were having free rein. His reports, furthermore, constitute the most reliable account of medical colleges existing during and prior to his time. I refer to Dr. John H. Rauch, one-time secretary of the Illinois State Board of Health. Other state board officials could be mentioned who, without adequate pay, and facing opposition from the very persons from whom support was expected, carried on vigorous and effective campaigns in the interest of the public. Even though this is a dark picture, it is no more dark than could be drawn regarding the ineffective control of other matters, commercial and otherwise, which are due to our complex and politically-influenced city and state "police-powers." The important thing is for medical men and especially those on state boards to recognize the defects in connection with these medical matters, take stock of the hindrances, and all together, through the Federation of State Medical Boards and other agencies working toward the same end, press the campaign for betterment.

SOME OF THE REASONS FOR THE PRESENT CONDITIONS

Briefly stated, the causes for the present complexity of conditions, speaking from the national standpoint, are as follows:

1. Instead of one controlling factor there are sixty-two boards, each of which has no legal connection with, or responsibility for, the work of the other sixty-one boards.

2. These boards are hampered in many respects, varying with different boards, such as by (*a*) poor laws, (*b*) bad

politics, (*c*) unskilled board members, (*d*) conflicting boards, (*e*) lack of provision for skilled examiners, (*f*) lack of full-time officials, (*g*) lack of ample funds with which to do things, and (*h*) lack of ample authority to do what is needed.

3. Lack of direct control of the chartering of new colleges.

4. Difficulty (formerly) of securing accurate knowledge of conditions underlying medical education and licensure in different sections of the country, and again the lack of officers, time and money which would permit of wholesale campaigns of investigation such as have been voluntarily carried on by the American Medical Association through its Council on Medical Education.

NOTE: Even if each board had possessed all that was needed for such tours of inspection, it is a question whether such work conducted by all boards individually would be desirable. It would be poor economy, be an awful nuisance to the medical colleges thus inspected and—worse yet—could only result in a multiplicity of conflicting standards.

5. Lack of information regarding what other state boards are doing. All states are not warned against quacks, charlatans or other undesirables to whom licenses are refused by one state, nor do they as a rule learn the fact if one state revokes a license for unprofessional conduct. All boards should be informed of such matters. Here is a suggestion for the new State Board *Quarterly*.

6. Lack of money, means or skill to conduct examinations which will bring out the applicant's real training instead of his being merely able to memorize book knowledge.[1]

We have, therefore, viewing the situation from the national standpoint, a very complex system with sixty-two different boards, having no legal cohesiveness, and each having the final word in its own district. There is no central authority over these boards, and at present there is no strong influence by which they can be brought to work in harmony for the best welfare of this great country, for uniformly high standards and for equally effective methods of examination and licensure. It is working along these lines that the Federation of State Medical Boards can do the greatest good.

WHAT THE FEDERATION OF STATE BOARDS SHOULD BE

(*a*) A moral force standing above the individual boards, supporting the good work being done and extending knowledge of proved methods to other boards.

(*b*) A moral force tending to unify the efforts of all boards, thereby securing a better enforcement of laws now existing and urging better laws in states where such are needed.

(*c*) An influence toward a rapid extension of reciprocity in medical licensure.

(*d*) An organization through which impostors, incompetents or other undesirable practitioners can be prevented from securing the right to prey on the public in any state.

(*e*) An organization which will influence the general adoption of a single and fair educational standard for measuring all candidates for the license to practice the healing art by whatever form of treatment.

(*f*) An organization which will be in position to solve the problem of providing a single examination which will be so thorough as to command recognition by all state boards, along the lines of the Conjoint Board of England or the new Dominion Examination just provided for in Canada.

(*g*) An organization to study the needs of various boards and through publicity to help secure those needs; not to usurp the authority of the individual state boards but to secure the cooperation of all boards, by which such authority may be made more effective.

The greatest work of the Federation will be to secure complete protection of the people of the entire country against those who are not properly trained in the medical sciences, where now, although some parts of the country may be protected, other vital parts are seriously exposed.

The present confusion and ineffectiveness in the control of medical licensure and medical education, even as does the confusion existing in divorce laws, in commercial matters and in other departments of public life, sometimes lead one to despair of the future of the form of government in the United States, the land of the free, where there is too little control over the lawless elements, who always abuse the liberties given to them.

The medical situation demands the unifying and correlative influence of an organization national in its scope, and in work along this line is the Federation's great opportunity.

1. Many state laws prohibit teachers in medical colleges from being members of the licensing boards; nevertheless they are the most skilled examiners. Could they not be called into service by a similar plan to that used by the Conjoint Board of England? (See A. M. A. Bulletin, March 15, 1912, p. 160.)

Book Notices

HIMSELF. Talks with Men Concerning Themselves. By F. B. Lowry, M.D., and Richard J. Lambert, M.D., Cloth. Price, $1 net. Pp. 193. Forbes & Co., 1912.

SEX EDUCATION. By Ira S. Wile, M.S., M.D. Cloth. Price, $1 net. Pp. 150. New York: Duffield & Co., 1912.

THE THREE GIFTS OF LIFE. A Girl's Responsibility for Race Progress. By Nellie M. Smith, A.M., Lecturer for the Society of Sanitary and Moral Prophylaxis. New York, with an Introduction by Thomas Denison Wood, A.M., M.D., Professor of Physical Education, Columbia University. Cloth. Price, $0.50 net. Pp. 138. New York: Dodd, Mead & Co., 1913.

HEALTH AND HAPPINESS. A Message to Girls. By Eliza M. Mosher, M.D., Lecturer on Special Anatomy, Physiology and Hygiene for Women, Chautauqua School of Physical Education. Cloth. Price, $1 net. Pp. 203, with illustrations. New York: Funk & Wagnalls Company, 1912.

INSTEAD OF "WILD OATS." A Little Book for the Youth of Eighteen and Over. By Winfield Scott Hall, Professor of Physiology, Northwestern University Medical School. With a Foreword by Edward Bok. The Edward Bok Books of Self-Knowledge for Young People and Parents, of Which This is Number Three. Cloth. Price, $0.25 net. Pp. 62. New York: Fleming H. Revell Company, 1912.

HOW SHALL I TELL MY CHILD? By Mrs. Woodallen Chapman. With a Foreword by Edward Bok. The Edward Bok Books of Self-Knowledge for Young People and Parents, of Which This is Number One. Cloth. Price, $0.25 net. Pp. 62. New York: Fleming H. Revell Company, 1912.

The growing interest in sex hygiene is well illustrated by the increasing number of books on the subject which are being offered to parents, schoolteachers, and even to children themselves. The group above is typical.

"Himself," by Dr. Lowry and Dr. Lambert, is one of a series of books for different ages and classes. This one is a talk with men concerning themselves. It covers a wide range of topics, including not only the usual subjects treating on sex hygiene, but also such questions as the limitation of offspring, sterilization of the unfit, medical fakes and how to defer old age.

"Sex Education," by Dr. Wile, is written for the assistance of parents and to suggest a plan for parental instruction of children.

Mrs. Smith's book, "The Three Gifts of Life," is addressed directly to girls themselves, leading the young readers by introductory chapters on plant and animal life up to a discussion of human life and its reproduction.

"Health and Happiness, a Message to Girls" by Dr. Mosher, is in the form of a series of letters and covers not only sex hygiene, but many other questions of interest to young girls. The chapters on the care of the skin and hair and the discussion of clothing ought to help in counteracting the influence of the everywhere prevalent "beauty column."

"Instead of Wild Oats" and "How Shall I Tell My Child" are parts of the Edward Bok series, the first being written for boys of eighteen and over and the second for parents.

The essential facts in sex hygiene are few and comparatively simple. The entire value of any book or pamphlet on this subject depends on the manner of presentation and the scientific accuracy of the statements. The growing tendency of all of this literature is to abandon the sensational and unscientific statements which characterized the early stages of this crusade and to appeal to the reason and the higher instincts rather than to fear. In this particular, the quality

of these books from a pedagogic standpoint has improved enormously of late years. A few years ago the question was, "Where can I find something suitable?" To-day the question is to choose from the amount of literature offered. Any of the books listed above can be safely recommended for the purpose for which they are intended.

HUMAN PHYSIOLOGY. By Prof. Luigi Luciani, Director of the Physiologic Institute of the Royal University of Rome. Translated by Francis A. Welby. Edited by Dr. M. Camis, with a Preface by J. N. Langley, F.R.S., Professor of Physiology in the University of Cambridge. In Four Volumes. Volumes One and Two. Cloth. Price, $5.25 each. New York: The Macmillan Company, 1913.

This extensive work, which has run through a number of editions in the Italian and which has been translated into several languages, has not heretofore appeared in English. The first volume covers the subjects of circulation and respiration, the second volume internal secretion, digestion, excretion and the skin. The book states conclusions from physiologic research and also enters largely into the history and the literature regarding them. The attitude of the author in regard to the phenomena of life, in contrast to that of some of the German physiologists, is stated as follows: "No sincere worker in the positive or scientific direction can deny that the specifically vital somatic phenomena, i. e., those by which living beings are differentiated from inorganic bodies, are inexplicable by the known laws of chemistry and physics, and . . . are altogether remote from mechanical explanation." An interesting feature of the book is the assertion of the author that to Cesalpinus rather than to Harvey is to be given the credit for the discovery of the circulation of the blood. The author also disputes the theory of the hormones as expounded by Bayliss and Starling, with regard both to digestion and the theory of fetal hormones. The discussions of physiologic phenomena throughout are brilliant and informing. The progress of research in the chemistry of digestion and in the internal secretions is so rapid nowadays that, as might be supposed, the work does not include theories and findings of the past two or three years, which would undoubtedly cause the author to modify some of his statements. In the chapters on digestion, the movement of the stomach and intestines, as revealed by recent research with the Roentgen ray, are not touched on. Likewise the more recent work on the physiology of the hypophysis is not considered and the author concludes that the functions of the hypophysis are not known.

Throughout the book the work of the Italian physiologists is perhaps naturally emphasized. The work of the German physiologists is necessarily given abundant consideration, but that of English and American physiologists, with the exception of Bayliss and Starling, is scarcely referred to. The work is well translated and is a valuable addition to the works on physiology available in the English.

BLOOD-PRESSURE FROM THE CLINICAL STANDPOINT. By Francis Ashley Faught, M.D., Instructor in Medicine at the Medico-Chirurgical College, Philadelphia. Cloth. Price, $3 net. Pp. 281, with illustrations. Philadelphia: W. B. Saunders Company, 1913.

This book is written from the clinical standpoint. Comparatively little space is taken for the instruments and instrumental technic. The bulk of the work discusses the variations in blood-pressure and the conditions which cause them. The relations of blood-pressure to various diseases is discussed at considerable length. Therapeutics receives its full share of attention. The relative inefficiency of various drugs which have been heretofore relied on to increase the blood-pressure is clearly presented. The past generation of physicians were well convinced that digitalis, strychnin and several other drugs raised blood-pressure as part of their ordinary action. This is now disputed and a new attitude must be taken in regard to these old-time remedies. Similarly the older view that altitude raised the blood-pressure must give way to the results of observations which show that it produces little change, but that its influence is in the direction of depression rather than of elevation of the pressure. Full references are given as a rule so that the reader can pursue further studies on any part of the subject.

THE PEOPLE'S GUIDE: Points for the Patient, Notes for the Nurse, Matter for the Medical Adviser, Succor for the Suffering, Precepts for the Public. By John Grimshaw, M.D., B.S., D.P.H. Cloth. Price, $3 net. Pp. 839. New York: The Macmillan Company, 1912.

It is recognized to-day that one of the functions of the medical man is the instruction of the laity. There is no better means for carrying out this function than by the popular medical guide or by some similar work designed to give the layman advice in regard to health. Such a work becomes a household oracle, consulted in the most serious emergencies. Such books in the past have often disgraced the medical profession by their crudities and inaccuracies. This is all the more reason why the modern writer should endeavor to redeem this field from the enemy represented by the nostrum man or the faddist. We believe that Dr. Grimshaw has endeavored to do this and has succeeded. The author has certainly given good measure and the volume is filled with valuable information and seems worthy of recommendation.

CALM YOURSELF. By George Lincoln Walton, M.D. Cloth. Price, $0.50. Pp. 46. Boston: Houghton, Mifflin Company, 1913.

This book is a plea for equanimity and a purely practical equanimity, such as will enable a person to take a street car in the rush hours without losing his temper. Not that the author expects any one to reach such a state, but he hopes that people will cultivate poise to the extent at least of lessening fears, of taking the edge off acute resentments against persons and things, of modifying impatience and curbing worry. As a shield against every-day annoyances the author advocates the use of the phrase "never touched me," and illustrates the way such maxims should be ready for immediate use by the following story in which the joke was on him: While the author was walking with a friend an automobile came up behind announcing its approach by a honk which was neither groan, grunt, growl, nor scream, but a mixture of all. He said to his friend: "Don't you hate these freak horns?" "I used to," said the friend, "but since reading your book I say to myself, 'never touched me.'"

A LABORATORY GUIDE TO THE STUDY OF PARASITOLOGY. By W. B. Herms. Cloth. Price, $0.80 net. Pp. 72. New York: The Macmillan Company, 1913.

With the rapid growth of parasitology, especially in its relation to preventive medicine, there has arisen a demand for thorough laboratory instruction in this important field. The study of the methods of transmission of various parasitic and infectious diseases is of such vital importance to the country at large that every student, practitioner and, especially, every health officer should have at least a general knowledge of the characteristics and habits of the more common parasites and parasite-carriers. This guide comprises a series of practical laboratory exercises on the more common parasites. The exercises are admirably planned and should prove valuable in direct and differential diagnostic work.

DIE STÖRUNGEN DES VERDAUUNGSAPPARATES ALS URSACHE UND FOLGE ANDERER ERKRANKUNGEN. Von Dr. Hans Herz. Second Edition. Part Two: Die akuten Infektionskrankheiten in ihren Beziehungen zum Verdauungsapparat. Paper. Price, 8 marks. Pp. 449. Berlin: S. Karger, 1913.

This is the second part of a monograph already described in THE JOURNAL. It will be as useful as the first portion. It embraces what is known of disturbances of digestion as causes or foci of entrance of causes of infections, and the disturbances of the digestive organs due to infectious diseases. The book will be found valuable by those especially interested in these subjects.

HYGIENE AND SANITATION. A Text-Book for Nurses. By George M. Price, M.D., Director of Investigation, New York State Factory Commission. Cloth. Price, $1.50 net. Pp. 236. Philadelphia: Lea & Febiger, 1913.

This book is designed to give the nurse a knowledge of the elements of hygiene in its various branches. Under "Hygiene of Habitations" there is perhaps a little more practical plumbing than the average nurse is likely to require in her

daily work, unless, indeed, she is a member of the Visiting Nurses' Association, or in the employ of a city department of health. Taken all in all, however, the book is practical and should be of great value to all nurses, especially those engaged in work of a semipublic character, such as school nurses and health department nurses.

SYSTEMATIC CASE-TAKING. A Practical Guide to the Examination and Recording of Medical Cases. By Henry Lawrence McKisack, M.D., M.R.C.P., Physician to the Royal Victoria Hospital, Belfast. Cloth. Price, $1.50 net. Pp. 166. New York: Paul B. Hoeber, 1913.

The author has amplified the ordinary syllabus of case taking into a short manual which not only indicates the steps to be taken to elicit the desired information, but which discusses briefly the diagnostic significance of the various symptoms discovered.

LIPPINCOTT'S BLOOD-PRESSURE AND CLINICAL CHARTS. Designed by Percival Nicholson, M.D. Price, $0.50 per set of fifty sheets. Philadelphia: J. B. Lippincott Company, 1913.

This is a convenient ruled chart, designed to facilitate the plotting of curves of systolic and diastolic blood-pressure and temperature in Fahrenheit degrees. A single sheet will accommodate the records of three weeks.

Medicolegal

Lodge Physician's Contract and Right to Compensation

(Page vs. Cohen (N. Y.), 140 N. Y. Supp. 935)

The Supreme Court of New York, Appellate Term, Second Department, holds, in this action against the treasurer of Court Long Island, No. 34, Foresters of America, that, the plaintiff having been duly elected at the election of March 27, 1907, lodge physician for a period of one year, this election constituted an employment, which being duly recorded by the defendant in its lodge proceedings, such record took the case out of the statute of frauds requiring certain contracts to be in writing. The plaintiff protested over and over again that he stood on his contract, which entitled him to 25 cents per member of the defendant lodge for the last quarter of the year, the period in suit. Whether treated as an action for wages or for breach of contract, the plaintiff on the case made was entitled to recover. There was no necessity for demanding that he elect on which ground he expected to recover. The period of his service having passed, and his compensation having been fixed by special contract, nothing remained to be ascertained except the number of members, on which his compensation was based, and his readiness and willingness to perform, his evidence of which was erroneously excluded.

When Silence Not Consent to Physical Examination

(State vs. Horton (Mo.), 153 S. W. R. 1051)

The Supreme Court of Missouri, Division No. 2, says that the defendant, who was convicted of rape, insisted that the physicians who examined him while he was in custody should not have been allowed to testify to the fact that he was suffering from a venereal disease. To meet this insistence, the state contended that the examination complained of was made with the defendant's consent. The court having read the record carefully, finds that the "consent" consisted of the failure of the defendant to object to the physical examination. When a man is under arrest, without counsel, and, speaking metaphorically, is standing in the shadow of a policeman's club, it requires something much more substantial than silence to justify an invasion of his constitutional right not to be compelled to furnish evidence against himself. If the evidence of the physicians had been objected to on the ground that the physical examination which they made under the orders of a police captain amounted to compelling him to testify against himself, as prohibited by Section 23, Article 2, of the Constitution of Missouri, then the admission of their evidence would undoubtedly have constituted reversible error. Instead of objecting to this evidence on proper grounds, however, the defendant merely objected because the physical examination took place after the preliminary examination before the committing magistrate. Such an objection was wholly insufficient to call the trial court's attention to the incompetency of this evidence.

Jurisdiction and Power of State Board of Health

(Board of Health of State of Louisiana vs. Susslin (La.), 61 So. R. 661)

The Supreme Court of Louisiana holds that Act 192 of 1898, of that state, as amended, confers on the State Board of Health jurisdiction over matters of local sanitation which, in the opinion of the board, cannot be efficiently and effectually regulated by the local boards. Act 98 of 1906 confers jurisdiction on the state board over the subject-matter of the manufacture, sale and inspection of foods within the state in so far as the same may affect the public health.

Such legislation is not repugnant to the provisions of Article 319 of the Constitution of 1898, guaranteeing to the electors of the city of New Orleans the right to elect their public officers charged with the exercise of the police powers and administration of the affairs of the city. Article 296 of the Constitution of 1898 vests in the general assembly the power to create state and local boards of health, and to define the duties and prescribe the powers thereof. This grant necessarily includes the power to determine the mode of the selection of members of boards of health, state and local, and withdraws the subject-matter from the purview of Article 319 of the same Constitution.

The preservation of the public health is a matter which concerns the state at large, and has been properly left to the State Board of Health, with jurisdiction to adopt a sanitary code of rules and regulations having the force of laws throughout the commonwealth.

The State Board of Health may enjoin the manufacture of food under such conditions as to render its use dangerous to the public health.

The court says that the point that the Board of Health, though armed with criminal remedies, may, in a proper case, have recourse to a civil proceeding or injunction for suppressing a public nuisance was definitely settled by this court in *Board vs. Maginnis Cotton Mills*, 46 La. Ann. 806, and, if one-half of what was alleged in the petition in this case as to the defendant's bakery being conducted in so insanitary a manner as to constitute a public nuisance was true, the case was a very highly proper one for such an injunction.

Constitutionality of State Pure Food Act Prohibiting Use of Boric Acid in Preservatives

(People vs. Price (Ill.), 101 N. E. R. 196)

The Supreme Court of Illinois holds constitutional the Illinois pure food statute enacted in 1907, and affirms a conviction of the defendant of violating it, he having been charged with having unlawfully manufactured for sale and sold a preservative compound known as Mrs. Price's Canning Compound, intended as a preservative of food, which was unwholesome and injurious in that it contained boric acid. The court says that the main purpose of the act is to protect health by preventing adulteration of food by any unwholesome and injurious ingredient. Boric acid is declared to be unwholesome and injurious, and the sale of any food to which it is an added ingredient is prohibited. It is just as important to prohibit the sale to the housewife of a compound containing boric acid, to be used by her to preserve fruits and vegetables put up by her for family use, as it is to prohibit the sale of fruits and vegetables after such an ingredient has been added. The reasonable construction of the act is that the prohibition against boric acid is not limited to foods to which it is an added ingredient, but extends to compounds, sold as a food preservative, which contain boric acid. The danger to health is as great from one as the other, and the prohibi-

tion of both was necessary to effect the evident purpose of the legislature. It may be conceded that the legislature has no authority to forbid the sale of a known wholesome article of food; but it is certain boric acid is not so universally conceded or known to be wholesome that judicial notice will be taken of it. Whether it is or not is a matter of dispute. In such cases, in enacting legislation in the exercise of the police power of the state, the legislative declaration that it is unwholesome must be accepted by the courts, and they will not investigate the facts for the purpose of determining whether or not the declaration of the legislature was warranted by the facts. Nor was the defendant protected, in the sale of the preservative, under the doctrine of the original package decisions of the Supreme Court of the United States, although the preservative in question was manufactured in another state and sold in Illinois in the original package.

Plaintiff Declared Barren, Afterward Giving Birth to Child

(Anshutz vs. Louisville Railway Co. (Ky.), 154 S. W. R. 13)

The Court of Appeals of Kentucky says that, in April, 1910, the plaintiff, a young married woman, aged 23, was injured while a passenger on one of the defendant's cars. At the time she was enceinte, and, September 6, there was born to her a boy baby. In April, 1911, she was taken to a hospital in Louisville, and, after having been there a few days, a serious operation was performed on her, at which time it was shown by the several physicians and surgeons who were present that there were removed from her body both fallopian tubes, the whole of the left ovary, and part of the right ovary. Her suit against the railway company for damages came on for trial on Dec. 21, 1911. Previous to the trial, however, the court, on motion of the railway company, appointed a surgeon to examine the plaintiff as to the nature and extent of her injuries, and her physical condition at that time. On the trial all the physicians and surgeons who were present at the operation in April, 1911, testified, as above indicated, with reference to the nature of the operation, and in addition that by reason thereof the plaintiff was made barren and could never have another child. They further stated that, at the time of the trial, a tumor had developed in her abdomen, which would sooner or later necessitate still another, and possibly more serious, operation, which would probably endanger her life. The surgeon appointed by the court, basing his testimony on the history of the case as given to him by the other physicians and surgeons, testified in substance to the same thing. The jury rendered a verdict for $7,000 for the plaintiff. On June 3, 1912, the plaintiff gave birth to another boy baby, and twenty-five days thereafter the railway company filed its action setting up this fact, and asked for a new trial of the former case, which was properly granted. There is nothing stronger in nature than the inherent desire to propagate one's species, and the fact that one has been wrongfully deprived of the procreative power would certainly, and must properly, appeal not only to the sympathy, but to the judgment of a jury, and incline them to be liberal in the assessment of damages. No reflection is intended on the physicians and surgeons who testified. Either there was some strange and unaccountable mistake, or one of those freakish things in nature happened which are so rare that they are said by scientific people to be impossible.

Climatic Observations at Davos.—Dorno has recently published the results of his observations at Davos, in which special attention was paid to the measurement of radiation, including separate records of the thermal, luminous, photographic and photo-electric intensity of direct radiation from the sun, and also the combined radiation from sun and sky, with and without clouds, etc. Discoveries have apparently been made which may have therapeutic applications. The most intense ultraviolet radiation occurs in summer, which probably explains the "glacier-burn" which occurs among patients in summer. A single summer day may give as much ultraviolet radiation as a whole month in winter. Thermal radiation, however, is most intense in the spring.—*Scientific American.*

Society Proceedings

COMING MEETINGS

Am. Academy of Ophthal. and Oto-Laryn., Chattanooga, Oct. 27-29.
A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Southern Medical Association, Lexington, Ky., Nov. 18-20.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Third Annual Session, Sept. 22-26, 1913

(Continued from page 1483)

Present Conception of Arthritis Deformans

DR. DAVID SILVER, Pittsburgh: Infection is the usual exciting cause of joint diseases in general, although trauma may act as an exciting cause in individual joints. No form of arthritis is known to be due to metabolic disturbance, unless it be gout. In the more gradual types of onset, the resistance of the patient is not so good as in the acute form. Although infection is usually due to some definite local sepsis, recovery does not follow the removal of the probable source of infection. When the disease is once established, other causes become active in perpetuating it. Treatment, to be effective, must include not only the joint lesion, but also all the elements of the case: the removal of the infective focus, when found; the use of measures to bring about function as near to the normal as possible, and the local care of the joint. The problem frequently becomes one mainly of increasing the lowered physical resistance.

DISCUSSION

DR. GWILYM G. DAVIS, Philadelphia: The infection in these cases may carry over a very long period of time, and may persist for years after the original focus has apparently been cured. In the early stages, the treatment should be directed against the infection, and in the later stages it should be a nursing treatment. Attention to the gastro-intestinal tract has certainly improved many cases.

DR. GEORGE E. PFAHLER, Philadelphia: One source of infection overlooked in such cases is the teeth. Even though one sees nothing locally, if the patient has had many fillings in the mouth or much dental work done I should advise that the teeth be thoroughly studied roentgenographically in the hope of finding the source of infection in obscure cases.

DR. DAVID SILVER, Pittsburgh: We must not forget that pyorrhea and other common sources of infection may be secondary, and may be due to the debilitated condition of the patient.

Operative Treatment of Hernia

DR. J. B. CARNETT, Philadelphia: Practically all hernias of young children belong to the congenital inguinal or the infantile umbilical type. The great majority of these can be cured by nonoperative treatment. After one year of age this treatment becomes less certain and after five years cure seldom occurs. Femoral hernia is rare in children and is never cured by a truss. If truss treatment cannot be applied thoroughly, operation should be done. It is very exceptional for truss treatment to prove curative in the adult, and it should be used only in those who refuse operation or where it is contra-indicated. Incarceration and strangulation are frequent in truss wearers. Most trusses are of poor construction and ineffective. The only contra-indications to operation in adults are extreme old age, grave organic disease and very large, irreducible hernias. In strangulation taxis should be done only during the first four hours and must then be gentle. As a rule, it should not be done at all, but resort be had at once to operation, the earlier the better the results. As a rule Bassini's method of operation is the best, though it may be modified to meet special indications.

The Dental Aspect of Oral Sepsis

DR. RANDLE C. ROSENBERGER, Philadelphia: The bacterial flora of an unclean mouth is very complex. Most of the organisms are nonpathogenic, but, when the enamel is injured, they produce erosion of the dentine and destruction of the

teeth. The bacteria can be greatly reduced by proper attention to cleanliness. Decayed teeth and stumps swarm with bacteria which find their way through the dental canals and the dentine and produce diseases of the gums and the alveoli. Improperly capped teeth are a menace on account of the bacteria they harbor. One of the worst conditions of the mouth with which we have to deal is pyorrhea alveolaris, which is due to pus-producing organisms.

DISCUSSION

DR. J. HAROLD AUSTIN, Philadelphia: Certain obscure toxic conditions are undoubtedly due to oral sepsis. A difficulty is that of detecting these foci under certain circumstances. A patient with a streptococcic septicemia eventually developed an endocarditis with a fatal termination. The original focus of infection in that case remained quite obscure until shortly before death a superficial abscess in the lymph-nodes behind the angle of the jaw on the right side developed and at necropsy beneath the second lower molar was found a small abscess from which streptococci were isolated.

DR. JOSEPH HEAD, Philadelphia: I have been treating pyorrhea alveolaris for ten years with moderately good results, but since using the autogenous vaccine and isolating every form of bacteria, we have better results and far more permanent. Also when the mouth cleared up the patients spoke of the great improvement they felt in the systemic condition, showing that there must have been a stopping of toxic material entering the blood which had reduced their vital forces. In the same way no one can hope to cure pyorrhea alveolaris when using vaccine without removing the source of infection.

DR. I. NORMAN BROOMELL, Philadelphia: Oral sepsis is a potent factor favoring systemic disease. Such lesions are usually either directly or indirectly due to caries and this in turn is due to lack of oral hygiene. Prophylactic measures should begin early and extend to old age.

End-Results of Bone Tuberculosis

DRS. DE FOREST P. WILLARD AND FRANK D. DICKSON, Philadelphia: Our observations are based on 200 cases very carefully selected in which the diagnosis was assured, the treatment thorough and the cases under observation at least five years. In 142 cases the disease is quiescent, forty-five are still under treatment and there have been thirteen deaths. Of the quiescent cases eighty have normal joint function and in sixty-two there is material impairment. Results have been much better when the treatment has been instituted early. The greatest benefit has been obtained by bed treatment as opposed to casts and braces. Strict enforcement of hygiene and supervision after leaving the hospital are essential.

DISCUSSION

DR. W. J. MERRILL, Philadelphia: I wish to emphasize two points: First, the absolute fixation of the diseased part until the disease is arrested and, second, the rest of the patient in bed during the acute stage of the tuberculous joint disease. Erroneous conclusions are often drawn from treatment of joint affections which resemble tuberculosis but are not tuberculous. Also, from the application and the faulty maintenance of bed and cast treatment. One fact is very evident, that the increase of good results is enormously enlarged by the introduction of early treatment.

DR. G. G. DAVIS, Philadelphia: We must devote more attention to heliotherapy. That is, first, open-air treatment of tuberculous joints in the same way that you treat tuberculous disease of the lungs and, second, to expose locally the wounds directly to the sunlight. It is amazing to see in Switzerland children playing in the snow with nothing but a hat, a pair of slippers and apparently a breech belt.

Operative Treatment of Fractures

DR. EDWARD MARTIN, Philadelphia: A further experience with the open treatment of fractures has brought conviction on certain points: To the effect that the fractures of children very rarely require outward intervention. In them reduction is usually easy and retention efficient. Moreover, even though reduction be imperfect, the tendency during growth is toward the correction of the deformity rather than toward an exclusion. This often is in marked contrast to the fractures of the adult, particularly to those at or past middle age. The bones during their growing period are more avid of nutriment than any other tissues of the body. It seems quite definitely shown that even with the most perfect apposition and retention by buried plates, supplemented by splinting, the healing of the fracture is slower than it is after satisfactory, though less perfect, apposition, without operative intervention. It seems clear that even with the most perfect technic and with primary healing, plates and screws at times become a source of irritation and must be removed. Time, skill and attention are devoted to reduction and retention and yet movement and massage, so important for restoration are too often postponed or omitted altogether. It is also clear that in fractures united with slight deformity this deformity in the case of the adult is often enormously increased by too early a use of the part. This is notably true in regard to fractures of the femur. By the Whitman reduction method and by the Phillip-Maxwell-Ruth double traction method it has been shown that fractures of the neck either subcapital or subtrochanteric, can, as a rule, be united and that good function will result. It is undoubtedly true that certain fractures of the femur cannot be reduced and cannot be retained. Such fractures undoubtedly should be subject to open operation. The best mechanical device for fixation after internal splinting, so far the best that none other can be mentioned beside it, is the vanadium steel plate of Sherman. This, with the screws and screw-driver supplemented by the use of the Lowman clamp and by an efficient drill, makes the operation of plating an easy one. The general principles where an open operation is needful for reduction, retention should be secured by the least possible amount of buried foreign material. Hence a strip of fascia and chromic catgut, strings, nails, screws, fine silk or wire are preferable to plates when they serve the purpose. Often they will not. There are some fractures, notably those of the tibia, in which union fails, though apposition is practically perfect, nor does metal plating help matters. Such fractures should be treated by either plating or pegging or otherwise bracing together with bone flaps taken from the patient at the time of operation.

DISCUSSION

DR. WILLIAM S. O. SHERMAN, Pittsburgh: The success in the operative treatment of fractures where plates and screws are used is dependent on three factors: First, an aseptic wound; second, screws which will not pull out, and third, a plate which will not break. Ninety-eight per cent. of the failures in this class of work have been due to infections, the pulling out of screws and the breaking of plates. The infections would be greatly minimized if the teaching and technic of Mr. Lane were carefully carried out. There is no occasion for the screws pulling out and plates breaking if the proper screws and plates are used. Why use three times as large if one-third will answer the purpose? Why use ten wood screws in a bone if two or four machine-made screws will have a greater holding power? Every mechanic knows that a wood screw should not be inserted in hard, compact bone. A mechanic would not put a screw in marble or ivory directly, he first drills the hole and then puts in his screw. In the last four years I have operated 150 times in a series of over 2,000 fractures. These cases were due to severe traumatism in the mills and mines in the western part of Pennsylvania. The end-results in these cases were very satisfactory; certainly the disability was greatly minimized. In the first series with Lane screws we found it necessary to remove 30 per cent. of the plates. Since using vanadium steel and tap screws only 2 per cent. of the plates have been removed.

Carcinoma of the Breast

DR. JOHN B DEAVER, Philadelphia: Cancer of the breast is the type of malignant tumor analogous in its tendencies to internal cancer. The reason for this is that the patient is sent too late to the surgeon. The chief hope for reducing the mortality from cancer is to teach patients to avoid all

sources of irritation, now regarded as causative of cancer, and to watch for early signs of malignant change. In our last 200 cases of cancer of the breast considered operable, an average of three years had elapsed between discovery of the lump and operation. Death occurred in more than 75 per cent. of the cases.

DISCUSSION

DR. WILLIAM L. RODMAN, Philadelphia: The principal thought to be gathered from Dr. Deaver is that since we cannot certainly diagnose cancer in its early stages then the best thing to do is to operate in the precancerous conditions. I fully agree with him that perhaps every case of cancer of the breast is preceded by a chronic cystic mastitis. Statistics show that a percentage varying from 10 to 50 results in cancer. Therefore, the lesson to be drawn is not to wait for inoperable cancer. Until we have done that we will not achieve the good results in cancer of the breast we should.

The Transmutation of Tumors

DR. WILLIAM L. ESTES, South Bethlehem: A number of surgeons have reported cases of tumors which have both epithelial and connective tissue malignancy. There are on record cases in which patients who have had cancer have developed sarcoma *in situ* or metastatically. I have seen several instances of this sort.

DISCUSSION

DR. JOHN SPEESE, Philadelphia: It is rather difficult to believe that in tumors, sarcomas or carcinomas, a transmutation can occur. It seems more rational to believe that these tumors are both independent, although we must admit with special pathology that long irritation by sarcoma may so stimulate the overlying epithelium that cancer may develop. Or, on the other hand, that as squamous carcinoma pushes down on the tissues the equilibrium may be so upset that sarcoma develops. They may occur side by side.

Inflammation of the Female Pelvis with Reference to Smears Made at Time of Operation to Determine the Necessity of Drainage

DR. WILLIAM H. HOWELL, Altoona: Ninety per cent. of diseases of the female pelvis are due to neisserian infection or to abortion. Gonorrhea is a mucous membrane disease and travels over the mucosa through the uterus to the tubes. Infections of the broad ligaments and Douglas' cul-de-sac are due to extension by way of the lymphatics. In such infections the treatment should be expectant until an abscess localizes the infection, when the pus should be evacuated per vaginam. In gonorrheal infection of the fallopian tubes the time favorable for operation should be awaited, when salpingectomy should be done. No conservative operation will ever restore the function of the tube.

DISCUSSION

DR. BROOKE M. ANSPACH, Philadelphia: Unquestionably in pelvic surgery the best treatment is non-operative during the acute stage. That is almost invariably true in the cases of gonorrheal pelvic infection, and the surgeon does well who leaves these cases alone until the conflagration has subsided and until the results of the destructive lesion are apparent and the virulence of the infection has passed, and when he will need to do less radical surgery than during the acute stage. The same conservative plan is advisable in puerperal infection, which is usually of a much more serious type. Under these circumstances if the infection can be reached by a vaginal or an extraperitoneal incision, that of course is the procedure of choice and in the great number of cases proves a life-saving measure. If it cannot be reached by this means and we are obliged to do an abdominal operation, then, I think, drainage must be a part of the technic.

DR. GEORGE M. BOYD, Philadelphia: We are getting away from the early surgery of obstetric infections. We must look on the early puerperal infection as a general infection and not a local infection. The question also arises whether the patient has developed on top of her puerperal infection a gonococcus infection. I invariably say that if it is a simple puerperal infection in all probability the trouble would have disappeared within two or three months, but in gonococcus infection a mass can be felt months after the delivery.

DR. G. E. SHOEMAKER, Philadelphia: I want to endorse what Dr. Howell said about the effectiveness of the waiting method in the handling of the puerperal infections and the danger of operating in all these cases through the abdomen in the active stage. The particular point he raised as to the method of getting help from microscopic examination is limited to a very few cases.

Some Diagnostic Errors in Differentiating Lesions of the Cervix

DR. EDWARD WEISS, Pittsburgh: In case of lesion of the cervix uteri one should always think of cancer. The early symptoms of cancer of the cervix are not characteristic. If examination is refused by the patient, no treatment should be given, but the dangers of indiscriminate drugging and douching explained to the patient. Too often the mistake is made of waiting for positive signs. Any ulcer-like lesion of the cervix should be referred to an expert for diagnosis if it does not respond quickly to local treatment. It is very difficult to make a diagnosis from sections. I have recently encountered five errors made in this way. One of the most confusing conditions is cystic degeneration of the nabothian follicles. Ulceration from procidentia or chancroids is sometimes mistaken for cancer. Every married woman above forty years of age should be urged to submit to examination once or twice a year.

DISCUSSION

DR. G. E. SHOEMAKER, Philadelphia: One of the sources of error and subsequent sorrow is the dependence on symptoms both on the part of the patient and on the part of the physician. We cannot wait for the development of pain or odor, or emaciation. We frequently see the stout, healthy-looking woman with advanced carcinoma.

DR. JOHN A. MCGLINN, Philadelphia: Many women have symptoms which undoubtedly point to cancer of the cervix and never consult the family physician until it is too late to do anything for them. So that, while I believe it is of great benefit to teach the general practitioner the necessity of early diagnosis, we should teach the women to have frequent examinations when they have any symptoms referable to the genital tract. I believe the early diagnosis of cancer is practically valueless unless this diagnosis be made by microscopic examination of the tissue. I believe we are wasting time in teaching the value of early diagnosis and not teaching that the time to operate on cancer of the cervix is before the patient has cancer of the cervix.

The Roentgenogram in the Diagnosis of Gastroenteroptosis

DR. HENRY K. PANCOAST, Philadelphia: The diagnosis of gastroptosis can usually readily be made clinically. The real value of the roentgenologist is to be found in the deduction of a comprehensive knowledge of the condition and all the factors concerned, some of which can be obtained in no other way. There are, however, many chances of error. According to our present knowledge the greater curvature of the stomach may extend to or even two or three inches below the navel without impairment of its function. Gastroptosis is now known to be much less frequent than formerly supposed. The mistake is often made of ascribing digestive and neurasthenic symptoms to gastroptosis when these symptoms are due to other causes. In the Roentgen rays we have the best method of determining gastric motility and atony. Severity of symptoms and failure to relieve them by other means, rather than the roentgenographic finding alone, furnish the indication for operation, though the Roentgen rays enable the surgeon to decide on the type of operation and whether it is likely to give relief or not; also to learn the anatomic results of operation.

DISCUSSION

DR. DAVID SILVER, Pittsburgh: I would like to emphasize one point in treatment, the importance of teaching the patient the importance of voluntary abdominal control. We can

give them corsets and exercises to increase the strength of the muscular wall, but, if we do not teach them control, we will fail of our object. Unless we change the posture and restore the normal contour, how can we expect a simple fibrous band to hold up an organ after the ordinary pursuits of life have begun again?

DR. JOSEPH SAILER, Philadelphia: I think that the reason for the divergent views held by physicians and surgeons in reference to splanchnoptosis is that it is neither a medical nor a surgical subject in itself. It belongs to both departments. The services of a physician in the diagnosis are perhaps equally as important as the services of a surgeon for cure. Whether the surgeon or physician supervise the treatment our methods of cure are what we commonly call external therapeutics. They consist of exercise, support and posture and to a very slight degree the application of drugs. It makes very little difference to the patient, and it ought to make very little difference to the physician, what position the colon assumes in the abdomen, providing its function is performed. It makes very little difference what is the position of the greater curvature and pylorus if it furnishes secretion and provides nutrition for the body and gives no definite symptoms. I believe that in the treatment of these cases a great deal is accomplished by means of breathing exercises and abdominal support.

(To be continued)

MEDICAL ASSOCIATION OF THE SOUTHWEST

Eighth Annual Meeting, held at Kansas City, Mo., Oct. 7-8, 1913

The President, DR. W. T. WOOTON, Hot Springs, Ark., in the Chair

Prophylaxis of Syphilis and Professional Ethics

DR. ALFRED SCHALEK, Omaha: Syphilis must be attacked in two directions: in its relation to society and to the individual. Prostitution contributes the greatest factor in spreading infection. It is only a question of time before every prostitute becomes diseased. Official regulation has proven a failure wherever attempted. Absolute suppression is the only relief. While seemingly an utopian dream, it is feasible with the honest cooperation of everybody concerned. It necessitates measures to stop all sources leading to prostitution. When the time comes that syphilis is looked on only as a pathologic condition, in no way different from others, when its stigma of disrepute has been removed, when our therapy will destroy the micro-organisms and eliminate the toxins, and not only secure a symptomatic but real cure, our ambition to make syphilis a disease of the past will begin to be realized.

DISCUSSION

DR. WILLIAM FRICK, Kansas City, Mo.: I wish to emphasize the fact that a great many cases of syphilis are innocently contracted. I recall the case of a young woman who developed a chancre of the upper lip. She was having her teeth repaired and injury was done to the upper lip. In about the proper length of time a chancre developed. She had a secondary eruption.

DR. J. D. KERNODLE, Boyle, Okla.: I believe ignorance is at the bottom of the trouble. There is not a boy or girl who does not know right from wrong, but they do not know the tremendous consequences following a wrong. They need education along these lines.

DR. E. H. MARTIN, Hot Springs, Ark: If you admit you can cure syphilis, you will admit that the best method is prophylaxis.

DR. R. H. T. MANN, Texarkana: Is it possible to eradicate syphilis from America? It is, but it can be done only when the medical profession awakens to its full responsibility and gets the assistance of the various communities and state governments. Whether this task can be performed in this generation, or whether it will fall on future generations to drive syphilis out of America, depends wholly on the activities of the physicians now living, but it is a task that can be accomplished. The medical profession owes it to humanity to eradicate syphilis from this country.

DR. E. G. MARK, Kansas City, Mo.: With regard to the prevention of venereal disease, we must take the stand as physicians that prostitution cannot be eradicated, but you can segregate and control it. With proper segregation, proper inspection, venereal diseases can almost be eradicated, but prostitution can never be suppressed.

DR. ROSS GROSSHEART, Tulsa, Okla.: Venereal diseases and their dangers should be taught to the pupils of high schools, and when this is done sexual evils will be lessened and much done toward the wiping out of syphilis.

Surgical Constipation

DR. A. L. BLESH, Oklahoma City: Aside from various stenoses, congenital or acquired, constipation has principally to do with the colon, or to better express my meaning, the colon has most to do with constipation. Coprostasis is the *fons et origo* of a train of pathologic sequences ranging from the misnamed "biliousness" to true organic nephritis and other organic degenerations which have long been treated as entities. The field of so-called idiopathic or purely functional constipation is becoming more and more circumscribed, and more and more we are coming to realize that mechanical interference is at the bottom of the condition. These mechanical causative factors frequently consist in embryologic deviations having their origin in evolutionary processes, that is, reversions to some remote ancestral type. Many of these deviations exist without symptoms being fully compensated in one or more of several ways. They may exist symptomless for a time and then be brought to the surface by some grave physical crisis, such as reducing illness, and especially so by labor in which hitherto compensating elasticity of a tense abdominal wall is lost by overstretching. That compensation, when it consists in muscular overdevelopment of the colon itself, may be lost, as is the case with any other overmuscularization of a hollow viscus. I have anchored the colon in eight cases, with complete relief of constipation and sequences in four; partially relieved, two; unimproved, two; ileosigmoidoscopy with separation of ileum, five; completely relieved, three; improved, two; cecosigmoidoscopy, two; completely relieved, two; Lane short-circuiting, severing of the ileum with implantation low in the sigmoid, in three; all are much improved, but all have had attacks due to regurgitation mentioned above.

Operative Treatment of Constipation

DR. W. J. FRICK, Kansas City, Mo.: Operative treatment of constipation is indicated when some degree of organic obstruction of the intestine exists. I am not an advocate of surgical interference in this condition, except after all intelligent efforts at a medical cure have failed and the patient is threatened with a permanent invalidism. Concerning the bands, membranes, adhesions and kinks, we cannot yet be certain whether they are the cause or the result of constipation. According to the available evidence, it would seem that they were the cause rather than the result, since the most recent researches appear to support the theory that they are developmental in origin rather than the result of inflammatory processes. But that they may bear neither causal nor resultant relationship to constipation is shown by the clinical experience of competent observers. Certainly much improvement follows the division of these structures in some cases; just as certainly this treatment has given not the slightest benefit in other cases. Another of the causes of constipation is the result of chronic pelvic peritonitis. I have in mind the fixation of the pelvic colon to the pelvic floor or to the rectum.

Some fibroids of the uterus, retrodisplacements of uterus and tense cysts are capable of exerting such pressure on the pelvic colon as to cause difficult, painful and inefficient defecation. After removal of the tumor or correction of the displacement, these patients recover from their constipation. Among other short-circuiting operations is one done for exclusion of the splenic flexure, that is, anastomosis between the

ascending limb of the transverse colon and the decending colon. Colectomy relieves all the trouble that may have existed in the colon; however, the removal of the colon is a formidable operation and is not without danger. It is not an operation for one who has not had a large experience in abdominal surgery. All short-circuiting operations of whatever type are contra-indicated in cases in which the cause of the trouble lies distal to the lower portion of the pelvic colon. In such cases ileosigmoidostomy cannot relieve, but, on the contrary, may even aggravate the trouble.

Uncinariasis in the Middle States

DR. ESTILL D. HOLLAND, Hot Springs, Ark.: The treatment of hookworm is not as simple, safe or satisfactory as you may have been led to believe, but if you can start treating a patient who has two hundred hookworms and even get half of them with each course of thymol, it will not be long before he will either be cured or else have so few remaining that they will not cause him any inconvenience—provided he does not get a reinfection. The examination of the stool of patients will explain a great many chronic cases. There is no way to diagnose a moderately severe case of hookworm except by examining the stool, and if a patient has the disease it will practically always show on such an examination.

The High Short Incision for Cesarean Section

DR. H. S. CROSSEN, St. Louis, Mo.: The high incision in suitable cases has two distinct advantages. First, there is less extensive handling of the peritoneal surfaces—hence less peritoneal shock and less danger of infection from handling. Second, the incised uterus drops away from the abdominal incision, thus preventing adhesion and firm fixation of the incised uterus to the abdominal wall, which has proved a serious matter in some cases operated on by the usual incision. Of course, the high incision is suitable only for clean cases, where it is permissible to open the uterus within the peritoneal cavity. When the uterus is infected, the long incision should be used so that the uterus may be turned out before being opened. Again, when there is a probability that the uterus will have to be removed, on account of a tumor or other complication, the low incision should be employed. In the majority of clean cases requiring the cesarean section, the high incision will be found decidedly advantageous.

A Study of Epilepsy Based on One Thousand Admissions to the Kansas State Hospital for Epileptics

DR. M. L. PERRY, Parsons, Kan.: To be effective, systematic treatment should be begun early in the course of the disease and must be long continued. There are few diseases in which individual treatment is so important. Every case of epilepsy presents distinctive features which have a bearing on its proper and scientific handling. A very large number of patients will show temporary improvement under a change of treatment. In all head injuries a careful examination should be made for fractures of the skull and for evidence of depressed bone or meningeal hemorrhage. Any of these conditions call for immediate operation as a prophylactic measure. In all cases jacksonian epilepsy should be operated on if seen early. In long-standing cases due to cortical irritation and in chronic epilepsy from other causes little may be expected from intracranial surgery. As a routine measure, a search should be made for peripheral irritations to the nervous system and if any are found appropriate remedies, either surgical or medical, should be instituted for their relief. The attention should not be too strongly concentrated on merely checking the convulsive attacks, but it should be borne in mind that they are only symptoms of a general nervous disease. There is no drug which of itself will effect a cure. Of all the drugs used in the treatment of epilepsy the bromin preparations are the most effective. The bromid of sodium is the most satisfactory, as a rule. There is no advantage to be gained by combining a number of the bromids. Comparatively small doses of bromids usually yield better results than do large ones. Bromids should never be given, except in proper doses determined for the individual case and when the patient is under the frequent observation of a physician. I am convinced that most of the disrepute into which the bromids have fallen in recent years is directly due to their indiscriminate and unscientific administration. Any form of medical treatment will be limited in its effectiveness unless reinforced by hygienic and dietetic regulations.

(To be continued)

MINNESOTA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Minneapolis, Oct. 2-3, 1913

The President, DR. R. J. HILL, Minneapolis, in the Chair

Common Infections That Are Often Erroneously Diagnosed as Grip

DR. C. L. SHERMAN, Luverne: During the first four months of this year a number of cases of influenza developed in Luverne and vicinity. I attempted to study fourteen cases. Smears from the throat, sputum and secondary lesions were examined and cultures made. The influenza bacillus was found in only two. Streptococci were present in all cases, often in pure culture. In many respects they resembled the organism described by Davis and Rosenow. The pneumococci were present in four cases, and, in one instance, though not suspected previous to the examination, the tubercle bacillus was found. The onset was invariably abrupt. Fever was present in all cases, ranging from 101 to 104 F. Well-marked symptoms of infection of the upper passages were constant. All the patients complained more or less of sore throat. Cough, present at the time of the attack or developing within forty-eight hours with more or less expectoration, prevailed in all cases. Twelve had headache. Thirteen complained of pain in the back and limbs. Nervous symptoms were marked in six. Prostration and a feeling of disagreeableness out of proportion to the other symptoms usually prevailed. In one case in which the influenza bacillus was found there was no complaint of headache or pain. In the two cases in which the influenza bacillus was present the organism was found in smears from sputum and throat as well as in culture. Two had acute suppuration of the middle ear following the acute attack. Pure cultures of streptococci from the pus were obtained in both cases. One patient developed empyema. Pure cultures of streptococci were obtained from the exudate. One developed acute arthritis of both ankles. I feel justified in venturing the assertion that the majority of localized outbreaks considered by physicians as influenza are not caused by the influenza bacillus and should therefore not be designated as influenza.

DISCUSSION

DR. C. C. PRATT, Mankato: I would like to ask Dr. Sherman if in these cases in which he demonstrated a pure culture of the streptococcus, whether the streptococci appeared in chains when he made merely smears as well as the cultures? I find oftentimes that I get a diplococcus that appears to be a pneumococcus on smearing, but in culture it runs out in chains.

DR. C. L. SHERMAN: In answer to Dr. Pratt's question, I will say these streptococci did not occur in chains invariably, but the chains were shorter than the chains usually found in suppurative inflammations.

Preparatory and Postoperative Treatment

DR. FREDERIC J. PLONDKE, St. Paul: When circumstances permit the patient should be placed on a restricted diet for two or three days before operation. This should consist of well-cooked, easily digested food, low in proteins and devoid of raw fruit and vegetables, with a large quantity of water. From thirty-six to twenty-four hours before the operation she should receive a nonirritating cathartic, preferably castor oil, one or two ounces, and two or three hours before soapsuds or a simple enema.

In emergencies, where time does not permit a movement from a cathartic at least six hours before the time for operation, one had better rely on the enema alone, as a churned-up condition of the small intestine at the time of operation is not conducive to a comfortable postoperative con-

valescence. Every effort should be made to allay the fears of the patient, no matter how grave the prognosis.

When a patient's preoperation record and her general condition at the time for operation are such as would indicate a possibility of shock developing, we give a hypodermoclysis of normal salt solution as soon as she is partially anesthetized and before the operation is begun, allowing the solution to enter slowly during the time the operation is in progress, giving about three pints in all. If, in the course of an apparently simple operation, it is found that for any reason it might be unduly prolonged, the hypodermoclysis is begun at once. Under no circumstances do we wait until the pulse indicates impending shock. The salt solution is given during the operation in all septic cases, not for the stimulating effect alone, but also for the purpose of diluting the toxins. When the operation is sufficiently advanced that a distended colon does not interfere, she is given one quart of salt solution per rectum. This is done while she is sound asleep, otherwise it might be expelled. In the septic cases, and where the operation has been prolonged, proctoclysis by the drop method is begun one and a half hour after leaving the table. For this purpose one-half strength salt solution or tap water is employed. These preventive measures have been used by us for the last two years with the result that in over one thousand operations during that time there has not been a single case of severe shock.

In acute dilatation of the stomach following an operation gastric lavage usually gives prompt relief. Postoperative pneumonia is usually the result of preexisting bronchitis, careless exposure or inhalation of foreign particles, while the patient is unconscious. The treatment is largely preventive. With the use of salt solution during and after operation, thirst has lost most of its terror. Where formerly fluids were withheld entirely or allowed only in sips, there is now no hesitancy in giving them in liberal amounts.

DISCUSSION

Dr. J. W. Little, Minneapolis: In our practice, if a patient comes into the hospital on the day of operation we make no preparation aside from giving an enema a few hours before operation, but if the operation is done very soon no enema is given. Nothing is given until the patient is brought into the operating-room, and the skin has been cleansed with iodin, half strength. We dilute the iodin with alcohol. Benzoin is applied to remove any oil on the skin before that. In old people we give very little cathartics—in fact, not any at all the evening before, otherwise we usually give an ounce of castor oil, followed in the morning by an enema.

Dr. J. W. Andrews, Mankato: As to the preparation of the patient with the use of antiseptics, iodin and other agents before operation, I believe the majority of practitioners depend on iodin. There is great danger in administering morphin in cases of gas pains, for the reason that while it may relieve for an hour or two, it is all the time aggravating the condition, and I have seen a fatal issue from the use of morphin. If it had been withheld the patient might have recovered. I have seen cases of intestinal obstruction caused by morphin; the distended intestines were unable to perform their function. The hypodermic use of eserin is excellent, but in small doses only. One-thirtieth grain of physostigmin is a powerful remedy. I have seen one death from it. Death occurs on account of the arrest of respiration.

Dr. W. H. Aurand, Minneapolis: I would emphasize the importance of examining the patient's blood before operation and the condition of the kidney. Oftentimes we are too hasty in going into operations that should be postponed. We can prepare our patients for a month in advance, getting them in proper condition to stand a serious operation.

Dr. W. H. Magie, Duluth: In my experience the gastric disturbances are proportionate to the amount of ether that has been given and the traumatism and exposure of the abdominal contents. If one is sufficiently dextrous so that he can do an appendix operation in ten or fifteen minutes, gastric disturbances are not so likely to follow the operative procedure. There is very little need of morphin.

Dr. Donald Balfour, Rochester: I would like to emphasize the value of enterostomy in cases of obstruction. There is no doubt that by bringing up a loop of distended bowel in all cases of impending obstruction, or when it is evident from the patient's condition and a gradually increasing trouble that this obstruction is not going to be relieved, the performance of enterostomy will save many lives that would otherwise be lost.

Dr. J. Bacon, St. Paul: It would be folly to depend on morphin to relieve pain without trying to relieve the condition which produced it. But in the early stages after abdominal operation, pain is usually due to excessive peristaltic action. If we refrain from the use of morphin we exhaust our patients or allow them to become so. One other point: we know that the use of salines lessens the function of the kidney. For the past year I have been using plain sterile warm water in these cases. The patient retains readily far larger quantities of this liquid than of salines. The kidneys functionate early and more readily.

Dr. C. J. Holman, Mankato: With reference to acute dilatation of the stomach, if, in addition to the use of gastric lavage, you will place the patient on the abdomen to the right, you will find that the cause for obstruction at the pyloric end will be removed, and the patient will rest a great deal more comfortably and will not continue to have acute dilatation. I have been using plain water for the last six or nine months, and find my patients are more comfortable.

Dr. R. E. Farr, Minneapolis: In my experience we not infrequently have shock in some of our bad cases, and anything that can be used to prevent it is very important. The work of Crile shows that the prophylaxis with regard to shock is important, and I believe the time is coming when it will be a universal procedure to cut down the amount of anesthesia as he has done, thus reducing not only shock perceptibly, but the mortality and morbidity.

Accident Neurosis

Dr. J. M. Lewis, Minneapolis: The type of neurosis I wish to consider is the result of accident without lesion or with such structural damage that repair should follow without loss or disturbance of function of the injured part. Deformities caused by hysterical contractions closely resemble those caused by traumatism. The character of the accident, the amount of force and how applied, and the immediate effects of the injury should be considered carefully. The remote development of symptoms out of proportion to the immediate is always suspicious; that causes other than those from accidental injury are in evidence. Simulation is difficult and usually easily detected. Exaggeration is always a factor in personal injury claims. Subjective symptoms are unreliable and must not be accepted unless sustained by other evidence than the individual's statement. In these cases we have to deal with a condition. What is to be done with the victim who is really incapacitated by the conspiracy? The courts have held that liability is just as great for the accidental death or injury of a person diseased as one in health, and I believe that the lawyer and the doctor who frame up these fake injury cases should be held responsible when a claimant becomes disabled from the effects of this type of accident neurosis.

DISCUSSION

Dr. A. A. Law, Minneapolis: When we stop to consider that every man, woman and child in the community is educated by the lay press, by unscrupulous doctors, and by still more unscrupulous lawyers, that they can recover damages from corporations, is it any wonder they magnify their symptoms? Every one of us is familiar with case after case where people have symptoms out of all proportion to the injury, symptoms which are subjective, pure and simple, and the very minute they get a verdict or have a settlement made they throw away their crutches. Therefore, our skepticism.

The Interrelationship of High Blood-Pressure and Renal Disease

Dr. E. L. Tuohy, Duluth: We may arbitrarily speak of three groups: 1. This group comprises those individuals with

so-called hypertension, varying pressure going up to 170. A patient in this group probably needs his life, work, diet, and habits corrected. 2. Where the pressures register from 165 to 185, and are inclined to remain there, we may infer that there is a general arteriosclerosis, in which the kidneys are taking part. A sclerosis of the splanchnic vessels may be responsible for this extra rise of 15 to 20 points, instead of the kidneys, but splanchnic sclerosis is very infrequent. 3. This group with the systolic pressures persisting above 185, and the higher they go, the more definite they become, we may look unerringly to a true nephritis as their source. Careful observation of the urine and the amount passed in twenty-four hours will show us the signs confirmatory of chronic interstitial nephritis.

Meddlesome and misapplied therapy in the first two groups can do little harm. In the third it can work great havoc. It should never be forgotten that the high blood-pressure is Nature's method of retaining compensation. This does not mean that there is no therapy. A determination of the cause of the nephritis in the beginning should theoretically stay its course. If found in its full development, with restriction of the fluids taken into the body and the proper ordering of the patient's life, coupled with the reduction of the blood-pressure within moderate limits, immense relief from many symptoms is afforded, more particularly those of a nervous nature. Undue lowering of the pressure invites uremia. If he is in the stage of decompensation, his condition is by no means hopeless. The resources shown by Nature in carrying him so far as she has still attend him, and a little conservative assistance on the part of the physician may greatly extend his allottment of years.

DISCUSSION

DR. GEORGE DOUGLAS HEAD, Minneapolis: What is the cause of hypertension in nephritis? It is not caused by thick rigid arterial walls, since many cases of nephritis with high tension have elastic, pliable arteries. Furthermore, thick, pipe-stem arteries do not always mean high arterial tension. The toxic substances which a damaged kidney fails to excrete do not of themselves cause high blood-pressure. In many cases of acute nephritis, with scanty urine and diminished excretion of solids and fluids, the blood-pressure is normal or below normal. In my experience, acute nephritis is not often accompanied by an increase of blood-pressure. Extensive glomerular disease has very little to do with high blood-pressure, since in most cases of waxy kidney, very little, if any, increase of blood-pressure and almost no cardiac hypertrophy are encountered. Bright in his original study of nephritis suggested that the altered composition of the blood, due to a failure of the kidneys to eliminate waste product, thus bringing on a vasomotor spasm of arteries and arterioles, was the cause of hypertension and hypertrophy of the heart. Experimental evidence is not lacking to support this view.

The Importance of Orthopedic Treatment in Tuberculous Joints, Based on Twenty-Five Years' Experience in Four Thousand and Ten Cases

DR. ARTHUR J. GILLETTE, St. Paul: Some years ago absolute rest in bed for months and even years was advocated, but the results obtained were not any better than those obtained in cases which were allowed what we might now call "graded labor." In cases where the limb is perfectly straight a brace can be applied which will hold it so that the patient has no pain or temperature, or if there is a deformity which can be adjusted so as to overcome the deformity as much as possible gradually, and when overcome will allow the patient to be up and about, the more he is out of doors the better. Tuberculous diseases of the joints are benefited by fresh air just as much as tuberculosis of the lungs, and exercise is also beneficial as long as it is not carried to the point of exhaustion. If a patient has a temperature after being up and about, if no other cause can be found to account for it, he should be put to bed and should remain there as long as he continues to have a temperature above 99 F. Children or adults should not be allowed to consider themselves as invalids. Children should go to school and play, and adults should do some work suitable to their condition. Medical treatment is of the greatest importance. If a patient is anemic he should have iron, and if fleshy, beechwood creosote. Oils and fats are also very important for the thin cases. The use of cod-liver oil has been practically abandoned by us because very few children can take it. They will take butter, eggs, milk, beef and meat juices. If we will only keep in mind that the orthopedic treatment simply prevents deformity and pain, and is of immense importance in this way, and that a tuberculous disease of the joints is only a local manifestation of a constitutional disease, and while we are treating the joint do not forget that it is attached to a human being whose constitution needs building up, if you expect local improvement, then we will be treating tuberculosis of the bones and joints as it should be treated by an orthopedic surgeon.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

September, XXXIV, No. 9, pp. 509-572

1 Technic of Delivery Room; Delivery of Patient; Abnormal Presentations and Complications and Their Treatment. T. S. A. O'Connor, Troy, N. Y.
2 Uterine Inertia. P. T. Harper, Albany, N. Y.
3 Pelvic Cellulitis. D. C. Moriarta, Saratoga Springs, N. Y.

American Journal of Orthopedic Surgery, Philadelphia

July, XI, No. 1, pp. 1-191

4 Lateral Spinal Curvature. A. G. Cook, Hartford, Conn.
5 Movements or Positions of Normal Spine and Their Relations to Lateral Curvature. E. G. Abbott, Portland, Me.
6 *Corrective Jackets in Treatment of Structural Scoliosis with Special Reference to Mensuration and Record. A. H. Freiberg, Cincinnati, Ohio.
7 Scoliosis, Its Prognosis. J. L. Porter, Chicago.
8 *Correction of Fixed Types of Lateral Curvature, Complicated by Visceral Derangements, Especially Those of Cardiac Variety, with Slight Modification of Abbott's Method. R. O. Meisenbach, Buffalo, N. Y.
9 History of Scoliosis. R. W. Lovett, Boston.
10 What To Do After Corrective Jackets Are Removed. E. H. Bradford, Boston.
11 *Rotation Treatment of Scoliosis. A. M. Forbes, Montreal.
12 Treatment of Lateral Curvature of Spine by Forbes Method. Z. B. Adams, Boston.
13 Gymnastics for Crippled Children. M. T. Sweeny, Boston.
14 Spontaneous Fracture in Carcinoma of Bones. G. W. Hawley, Bridgeport, Conn.
15 Tendon Fixation-Operation for Prevention of Deformity in Infantile Paralysis. W. E. Gallie, Toronto, Ont.

6. **Treatment of Structural Scoliosis.**—As the result of his experience with Abbott's method Freiberg believes that it is possible to secure the reversal of the elements of deformity in some of the cases of structural deformity by Abbott's method. It appears that in quite a number of cases the means of correction cannot be exhausted in one jacket. Freiberg thinks it is probably better to remove the original jacket at the end of six weeks to ascertain what further needs to be done and what can be done. It is Freiberg's conviction that this method of applying corrective jackets constitutes a great advance and that the correction which we do secure is much greater than we have obtained by former methods. Whatever discomfort is involved is usually justified by increased efficiency.

8. **Fixed Types of Lateral Curvature.**—Keeping Abbott's cardinal principle before him, that is, to thoroughly flex the spine in applying the jacket, Meisenbach added somewhat more felt than ordinarily to the posterior part of the spine, with the hope of obtaining more flexion and gradual pressure later on. To obtain this, a window is also cut over the point of most pressure, and a steel trap-door so arranged that additional felt may be added at will and pressure applied with a wrench. This has permitted four or five thicknesses of felt, whereas one or two only could have been used by the other method of attempting to add felt to the window. The pressure then can be gradually added and correction obtained some weeks after the corrective jacket has been applied. By

this method, the pulse and blood-pressure can be followed thoroughly, and if there is too much pressure, less be applied. It also has the advantage that in cases of sloughs they can be dressed and the pads so arranged as to avoid pressure over them.

Meisenbach emphasizes that it is surprising to see how small a change of blood-pressure takes place when the rotary force and flexion are applied. Patients troubled by ptosis and gastric symptoms may improve in general health with a disappearance of symptoms after the spine has been corrected. The hemoglobin may often increase its percentage after the spine has been corrected, and without medication. Meisenbach would not make it the rule to attempt to build patients up by medication, and thereby lose time in spinal correction, but after the spine is corrected, he says, these measures may be undertaken with better success. Cardiac lesions, especially functional, due to pressure, may improve after correction, and are not increased. In cases of the severest types with great deformity of spine and derangement of viscera, treatment should be undertaken cautiously, with a view of improving the general condition of the patient.

11. **Rotation Treatment of Scoliosis.**—Forbes' rotation treatment of scoliosis aims at causing the correction of the deformity by the production of its counterpart. The production of physiologic scoliosis of an opposite character to the pathologic scoliosis which already exists is undertaken by rotating the patient's thorax on a fixed pelvis in a direction toward the side of the convexity of the curve. In thus producing physiologic scoliosis of an opposite character to the pathologic scoliosis from which the patient suffers, he not only changes the curve of the spinal column but also changes the deformity of the thoracic walls; that side which bulges unduly is flattened, and the flattened side is filled out. Forbes again describes his method in detail.

American Journal of Public Health, New York

September, III, No. 9, pp. 845-976

16 Organization, Powers and Duties of United States Public Health Service To-Day. J. F. Anderson, Washington, D. C.
17 Recent Contribution of Federal Government to Preventive Medicine and Health Conservation. A. R. Perry, Washington, D. C.
18 Experiment in Public Health Administration. E. B. Phelps, Boston.
19 Does American Federation for Sex Hygiene Speak the Truth? R. N. Willson, Philadelphia.
20 Bacteriology of Chronic Prostatitis. A. P. Hitchens and C. P. Brown, Washington, D. C.
21 Farm Water Supplies, with Special Reference to Dairy Farms. S. C. Prescott, Boston.
22 City Life in Relation to Tuberculosis: Plea for Better Surroundings for Factories and Better Homes for Working Classes. I. W. Brewer, Fort Niagara, N. Y.
23 Relation of Water to Chronic Intestinal Tract Infection. N. S. Hill and L. R. Whitcomb, Washington, D. C.
24 Croton Bug (Ectobia Germanica) as Factor in Bacterial Dissemination. W. B. Herms and Y. Nelson, San Francisco.
25 *Water of Lake Michigan. M. P. Ravenel and E. J. Tully, Madison, Wis.
26 Significance of Time at which Gas Is Produced in Lactose Peptone Bile, W. W. Browne, New York.

25. **Study of Water of Lake Michigan.**—As a result of their studies, the authors state that the water of Lake Michigan along the Wisconsin shore is not a uniformly safe source of supply. The water is polluted and at times quite heavily so, even out to a distance of seven miles from shore. The chemical and bacteriologic data conclusively indicate that there are no permanent currents in this portion of the lake, and that sewage once deposited in it may be carried to various points, depending on the direction and force of the wind. The prevailing currents cannot be depended on to insure safety, owing to storms, and even winds of moderate force which continue for several days will modify these currents. Even in those instances in which ledges of rock are supposed to form a barrier, safety is not insured. They conclude that to insure a safe supply from the lake, the intake should be carried out twelve to fifteen miles from shore. Owing to the depth of the water this is in many cases impractical and involves great expense. There are only two other procedures left open. One is the purification of sewage, which would be only a partial remedy, and the other is the filtration of the water before carrying it into city mains. In any case it seems that cities should cease the pollution of the lake by the dumping of their sewage into it.

This does not entirely meet all the requirements in the case, owing to the enormous amount of shipping on the lakes. Thousands of passengers on steamships are discharging their excreta daily during the larger part of the year into the water along the shore, especially in and about harbors. It seems probable that in spite of sewage purification, which should be undertaken in any event, that the demand for filtration will increase yearly, and that eventually all these cities will be obliged to furnish filtered water to their inhabitants. In the meantime, the use of hypochlorite of calcium has been recommended, and used in a number of instances with the most satisfactory results. This must always, however, be regarded as only a temporary expedient. The Great Lakes must still be looked on as a most useful and inexhaustible source of supply, but more care must be exercised in the future in preserving their purity and in selecting the locations for water-supply plants.

Archives of Pediatrics, New York

September, XXX, No. 9, pp. 641-719

27 Dangerous Middle-Ear Suppuration. I. W. Voorhees, New York.
28 *Vulvovaginitis in Young Children: Its Control and Successful Treatment. N. Barnett, New York.
29 Complement Fixation Test for Gonorrhea. A. McNeill, New York.
30 Roentgenoscopy of Chest in Tuberculous Meningitis. I. O. Woodruff, New York.
31 Tuberculin Skin Reactions in Infancy. A. Brown, New York.
32 Cisterna-Sinus Drainage for Hydrocephalus. I. S. Haynes, New York.
33 *Tracheal Obstruction due to Thymus. H. L. Lynah, New York.
34 Case of Bilateral Empyema Thoracis Treated by Successive Rib Resection. A. Zingher, New York.

28. **Vulvovaginitis in Children.**—In Barnett's series of twenty-six cases the following complications were present: arthritis of the shoulder, 1; arthritis of the wrist, 1; chronic general peritonitis, 1; pelvic peritonitis, 2, and painful heel, 1. The patient in the latter case was 11 years old and a roentgenogram showed a periosteal exostosis. Burning sensation on urination occurred in 30 per cent. of the cases. The irrigating solutions Barnett has used were potassium permanganate, 1-1,000; bichlorid of mercury, 1-4,000; Lugol's solution of iodin, 1-500. For instillations 1 or 2 grams of nitrate of silver ¼ per cent. and argyrol 10 per cent., were injected through a small catheter and retained three to five minutes. A cotton applicator saturated with nitrate of silver, 10 per cent., was also used to swab the vaginal wall.

Fourteen girls were treated with vaccines at intervals of three to seven days in doses of from five to one hundred millions. The injections were generally made in the buttocks. Each of the above methods received a most painstaking trial, and Barnett has finally adopted the following mode of treatment: The mother is instructed at the clinic in the method of giving the vaginal douche and in preparing the permanganate solution, 1-10,000 or thereabouts. This injection is to be given in the homes daily. The patient is put on small daily doses of hexamethylenamin. In the clinic the patient is treated with the electric endoscope. The child is placed on the bed-pan in the dorsal position, the foot of the table being raised to an angle of 30 degrees.

As to the complications, both cases of arthritis showed rapid improvement with complete cure of the arthritis following the use of vaccines, but the vaginal discharge did not diminish in either case, and the vaccine treatment was therefore suspended in both cases. In both cases of pelvic peritonitis treatment was suspended for an indefinite period. No vaccines were given in these cases. The painful heel was improved by the vaccine treatment, but at times there was a recurrence of severe pain at varying intervals. Of the twenty-six cases studied only seven were cured at the end of six months by irrigation alone. Seven of these cases after irrigation had failed have been treated with the endoscope, and five of these were cured in one month. Five additional cases of the twenty-six which had failed to improve on irrigation are now being treated with the endoscope and are rapidly improving.

33. **Tracheal Obstruction Due to Thymus.**—The interesting points of Lynah's case are that the dyspnea caused by the enlarged thymus was relieved by intubation, but returned shortly after the removal of the tube, that the patient, aged 3½ years, being of a type associated with status lymphaticus, could receive two injections of antitoxic serums without any anaphylaxis or fatal result and only have a slight erythema following the administration of the first dose; that the child, while asthmatic since birth, has never had convulsions. The child was wheezing like an old asthmatic. There was an area of dulness over the upper end of the sternum, the upper limit of the first intercostal space extending downward to about the fourth intercostal space; the lateral diameter from 3 cm. to the right of the median line and 2 cm. to the left.

Boston Medical and Surgical Journal

October 9, CLXIX, No. 15, pp. 521-556

35 Importance of Education in Tuberculosis Campaign. L. A. Jones, North Adams, Mass.
36 Tuberculosis Problem from Point of View of Local Boards of Health. B. H. Pierce, Cambridge, Mass.
37 Need of Cooperation between Local and State Forces in Tuberculosis Work. J. B. Hawes, Boston.
38 Value of Roentgenoscopy of Chronic Appendicitis and Inflammatory Conditions, Both Congenital and Acquired, about Cecum and Terminal Ileum. A. W. George and I. Gerber, Boston.
39 Medical Contributions of State Board of Insanity of Massachusetts. E. E. Southard, Boston.
40 Our Little Balloons: Some Observations on Gas and Ptosis. E. A. Codman, Boston.

Bulletin of Johns Hopkins Hospital, Baltimore

October, XXIV, No. 272, pp. 295-326

41 *Development of Antibodies in Serum of Patients Recovering from Acute Lobar Pneumonia. P. W. Clough, Baltimore.
42 Piroplasmosis: Lectures on Herter Foundation. G. H. F. Nuttall, Baltimore.
43 Enterogenous Mesenteric Cysts. R. T. Miller, Pittsburgh.
44 Salvarsan in Pernicious Anemia. T. R. Boggs, Baltimore.
45 Etiology of Arteriosclerosis. C. Frothingham, Boston.

41. **Development of Antibodies.**—The results of his experiments are summarized by Clough as follows: Of twelve cases, in which satisfactory protection tests were carried out with the serums of patients after crisis, or lysis, using the homologous strain of pneumococcus, nine had serums which showed definite protective power for mice as compared with normal serum. The serums of three gave negative results; in these three cases but one specimen of serum was tested. In two of the cases, the serum of which showed protective power after the crisis, specimens of serum obtained during the acute stage of the disease showed no such power. Further, in two other cases, one fatal, in which the serum was examined only during the acute stage, no protection was manifested. These serums, which protected mice from the homologous strain, were also tested with an heterologous strain, and showed no protective power toward that strain. Occasionally protective power cannot be demonstrated unless the serum is tested at frequent intervals during convalescence.

With but two exceptions, all the strains isolated were not phagocytable in fresh normal human serum, and were presumably virulent for man. The two other strains, which seemed identical with one another in every respect, were highly virulent for mice. As one was cultivated from the blood of a patient a few days before death, it seems most reasonable to regard it as also virulent for man, in spite of its phagocytability in normal human serum. This suggests the advisability of greater caution in assuming that the virulence of an organism for man is always parallel with its resistance to phagocytosis in the test-tube.

Of eleven cases in which the phagocytic activity of the serum after crisis, or lysis, was tested *in vitro*, six showed definite activity. In five, negative results were obtained. In some of these, at least, positive results would probably have been obtained had suitable variations in technic been employed. This activity has a significance which is quite different from that of a rise in opsonic index, which has often been described, but is qualitatively comparable with the activity of potent immune serum, in that it brings about active phagocytosis of a virulent pneumococcus, not phagocytable in normal human serum. In two of these cases serum examined before the crisis showed no such activity. The serum of a fatal case was also inactive. This phagocytic activity, with one exception, was strictly limited to the homologous strain, derived from the patient whose serum was being tested.

The active substances in the serum are bacteriotropins, in the sense of Neufeld, since they resist heating at 56 C., and persist in the serum *in vitro* for a considerable period. In both of two cases tested, phagocytosis in the peritoneum of the mouse closely paralleled phagocytosis in the test-tube. Intracellular digestion of the cocci, as shown by changes in staining reaction, was marked in both cases. The phagocytic activity of the serum ran closely parallel with its protective power for mice, both in incidence, in time of appearance and in strict specificity as to the strain of pneumococcus affected. It, therefore, seems justifiable to Clough to conclude that the protective action of the serum depends on, and is due directly to, its power of promoting phagocytosis.

Cleveland Medical Journal

August, XII, No. 8, pp. 513-580

46 Tumors of Carotid Body with Report of Two Cases. A. Graham, Cleveland.
47 Contribution to History of Magnet as Applied to Ophthalmic Surgery. H. G. Sherman, Cleveland.

Journal of Experimental Medicine, New York

48 *Fate of Tartrates in Body. F. P. Underhill, H. G. Wells and S. Goldschmidt, Chicago.
49 *Tartrate Nephritis, with Special Reference to Some Conditions under Which It May Be Produced. F. P. Underhill, H. G. Wells and S. Goldschmidt, Chicago.
50 *Study of Renal Secretion During Tartrate Nephritis. F. P. Underhill, H. G. Wells and S. Goldschmidt, Chicago.
51 *Circulation in Man: Blood-Flow in Feet. G. N. Stewart, Cleveland.
52 *Idem: Blood-Flow in Feet with Special Reference to Fever. G. N. Stewart, Cleveland.
53 *Study of Blood in Rats Recovered from Implanted Sarcoma. R. Weil, New York.
54 *Mechanisms of Metastasis Formation in Experimental Cancer. I. Levin, New York.
55 Influence of Temperature and Fluid Medium on Survival of Embryonic Tissues in Vitro. R. A. Lambert, New York.
56 *Regeneration of Axis Cylinders in Vitro. R. Ingebrigtsen, New York.
57 Resistance to Tumor-Producing Agent as Distinct from Resistance to Implanted Tumor Cells. P. Rous, New York.
58 Effect of Intraspinous Injections of Salvarsan and Neosalvarsan in Monkeys. A. W. M. Ellis and H. F. Swift, New York.
59 *Study of Spirocheticidal Action of Serum of Patients Treated with Salvarsan. H. F. Swift and A. W. M. Ellis, New York.
60 *Electrocardiographic Study of Anaphylactic Rabbit. J. Auer and G. C. Robinson, New York.
61 *Experiments on Cultivation of Microorganism Causing Epidemic Poliomyelitis. S. Flexner and H. Noguchi, New York.

48. **Fate of Tartrates in Body.**—Under the experimental conditions outlined by the authors, sodium tartrate subcutaneously introduced into rabbits failed to reappear in the urine. It is concluded that the disintegrative influence of the salt on the convoluted tubules is sufficient to account for the failure of the salt to be eliminated. No evidence of a vicarious function on the part of the glomerulus was observed.

49. **Tartrate Nephritis.**—It is indicated that the introduction of a sufficiency of alkali into animals in a state of fasting permits a greater elimination of urinary constituents during tartrate nephritis than obtains under similar circumstances when the alkali is omitted. Histologically there is evidence that the administration of alkali exerts a slight modifying action.

50. **Renal Secretion during Tartrate Nephritis.**—After the intravenous introduction of a solution containing sodium chlorid and urea into the rabbit during pronounced tartrate nephritis, all the chlorid reappeared in the urine within forty-eight hours. On the other hand, the nitrogen of the urine remained far below that usually eliminated by the normal animal under the experimental conditions; in other words, little or none of the urea injected was excreted by the kidney. In the light of the histologic findings these results are interpreted by the authors to mean that under normal conditions chlorids and water are passed through the glomerular mechanism, whereas urea becomes a urinary constituent by way of the convoluted tubules. These results constitute a direct confirmation of the older observations of others concerning the elimination by the kidney of the substances under discussion.

No evidence was obtained that the glomerulus may take over the function of the tubular epithelium.

51. **Blood-Flow in Feet.**—The blood-flow in the feet, according to Stewart, is smaller per unit of volume of the part than in the hand, the ratio of foot flow to hand flow per 100 cubic centimeters of the part usually lying in normal persons between 1 to 3 and 1 to 2. In the supine position, with the legs hanging down, the flow in the feet seems to be somewhat greater than in the sitting position.

52. **Blood-Flow in Feet and Fever.**—In the cases of fever investigated by Stewart the flow in the feet never exceeded the normal flow and was usually much below the normal. In explanation of the relatively small foot flow in the fever cases it is suggested that the vasoconstrictor mechanism of the peripheral parts, especially of the skin, is abnormally excited, and some direct evidence that this is the case is brought forward. The significance of this hypersensitiveness, or at least increased action, of the cutaneous vasoconstrictor mechanism is assumed to be that the peripheral vasoconstriction is a compensatory arrangement which secures for the organs mainly suffering from the infective process an increased flow of blood. On this hypothesis the rise of temperature is, chiefly at least, secondary, inevitably following the vasoconstriction, provided that the metabolism is, on the whole, not diminished. Accordingly the rational treatment of hyperpyrexia or of pyrexia if it is considered necessary to treat it, is to abstract heat by a process which will not diminish and may even increase the cutaneous vasoconstriction. This condition is exactly fulfilled by the cold bath, at least as regards its initial effect. Other so-called tonic effects of the cold bath are not considered here. Antipyretic drugs which act by dilating the cutaneous vessels would seem to be inferior in this regard. They diminish the temperature, it is true, but at the cost of defeating the beneficial redistribution of the blood which it is the function of the peripheral vasoconstriction to insure.

It is obvious, says Stewart, that for the elimination of a given quantity of heat from the skin by radiation and conduction in fever, a smaller cutaneous blood-flow will suffice than with normal body temperature, since the elimination of heat per gram of blood passing through the surface must be greater in fever owing to the greater difference of temperature between the surface of the body and its surroundings.

53. **Blood in Rats Recovered from Implanted Sarcoma.**—The studies reported by Weil were made in the attempt to determine whether the factor of immunity can be demonstrated in the blood of animals which have recovered from implanted tumors. Two series of experiments were carried out, each from a different point of view. In the first series large amounts of immune blood plasma were injected into animals with growing tumors, and also into normal animals subsequently implanted with tumors, in order to determine the effect on the tumor process. Twenty-four young white rats were included. These were divided into two equal lots of twelve each. Of the first lot, six rats received intravenous injection into the jugular vein of 1 c.c. of plasma, obtained from recovered rats. One cubic centimeter represents the average amount of plasma which it was possible to obtain from one rat. The other six received 2 c.c. of the same plasma intraperitoneally. On the day following this injection all the animals received a subcutaneous inoculation, by the trocar method, of rat sarcoma.

After ten days the animals were examined. Of the treated series, nine, and of the untreated series, ten, showed growths. On the eighteenth day the animals were again examined. Of the treated series ten remained alive, of which again nine showed tumors. Of the untreated series the total number remained alive, and ten showed tumors. There were no quantitative differences discernible in the average growth of the tumors. On the thirtieth day there had been retrogression in all except four of the treated series, and in all except three of the untreated series. At this point the observation of both series was discontinued. The conclusion was drawn that the preliminary inoculation of immune serum does not protect rats against subsequent implantation of tumors and does not noticeably influence the rate of growth nor the percentage of retrogressions in such tumors.

In another series of animals the conditions of the experiment were varied by making, in addition to the preliminary treatment with immune serum on the day preceding the tumor inoculation, a subsequent injection of serum five days thereafter. The treatment produced no therapeutic effect. Weil states that theoretically it is possible that immune substances may be ineffective in preventing successful implantation, whereas they may be of importance in controlling growth. In order to determine this point rats were selected whose tumors had shown progressive growth, and had reached a size measuring not less than 1.5 centimeters in diameter. Fourteen animals were selected for treatment. All the animals had been inoculated twenty-five days previously. There were 100 per cent. of takes, and on the day on which observation began all of the tumors were actively growing and showed no ulceration. The rate of growth of each tumor was plotted by a second observation made ten days later, or on the thirty-fifth day after inoculation. On that day each of the animals received an injection of immune plasma. In all the animals three further injections at intervals of two days were made intraperitoneally. All but two of the animals survived the treatment and were in good condition. In all the twelve that survived, except two, there had been continuous striking increase in the growth of the tumor, which at this stage is unusually active. In the two exceptions there had been retrogression which, in one, had been almost complete. Comparison with the controls brought out the fact that the percentage of retrogressions in this series was greater by 12 per cent. than in the treated animals. The conclusion is drawn that the repeated injection of plasma, derived from immune rats, failed to influence favorably the growth of a certain strain of rat sarcoma. Therefore, as far as the results of this series of experiments justify generalization, it is concluded that the blood of recovered rats does not carry the factor of immunity present in these animals.

In the second series of experiments, recovered rats received a series of subcutaneous inoculations of tumor extract, in order, if possible, to heighten their immunity. The animals were then bled and the plasma was injected into guinea pigs, as in the previous series. In this series again, however, there was complete failure to demonstrate sensitization. The conclusion is therefore drawn that it is impossible, by means of the passive sensitization of guinea-pigs, to demonstrate the presence of immune substances in the blood of rats recovered from an implanted sarcoma, or in the blood of rats recovered from this tumor and subsequently injected therewith.

54. **Metastasis Formation in Experimental Cancer.**—The analysis of the results of Levin's investigation shows that the differences in the frequency of the occurrence and in the specific localization of metastases are not due to the ease of detachment of the cancer cells from the primary tumor. Nor does the difference in the mode of transportation play a part. The main factors in determining the localization and frequency of metastases are the character and malignancy of the cancer cell on the one hand, and the general and local susceptibility of the organism of the host on the other. The failure or success of the proliferation of a group of cancer cells transported from the primary tumor into a distant organ is a result of the interaction of these two causes.

56. **Regeneration of Axis Cylinders in Vitro.**—It is shown for the first time by Ingebrigtsen that nerve fibers grow out from pieces of cerebellum of young cats and guinea-pigs when cultivated in coagulated plasma. The same phenomenon has been observed in cultures of spinal ganglia. The nerve fibers do not anastomose and they extend into the plasma unaccompanied by structures of any kind.

59. **Spirochæticidal Action of Serum of Patients Treated with Salvarsan.**—The authors found that the serum of rabbits treated intravenously with neosalvarsan, and of syphilitic patients treated intravenously with salvarsan or neosalvarsan, has a definite spirochaeticidal action on *Spirochaeta*

duttoni. Although this spirocheticidal action is exerted *in vitro* it can be demonstrated only after the treated spirochaetae are injected into susceptible animals. A curative action of the serum of neosalvarsan-treated rabbits is exercised on mice infected with *Spirochaeta duttoni*. The spirocheticidal action of the serum of salvarsan treated rabbits and patients is markedly increased by heating at 56 C. for thirty minutes. The increased spirocheticidal action produced by heating is due in part to the destruction of some inhibitory substance contained in normal serum and in part to a direct effect of the heat on the serum and salvarsan mixture. Cerebrospinal fluid does not contain the inhibitory substance present in normal unheated serum.

60. **Electrocardiographic Study of Anaphylactic Rabbit.**—Electrocardiographic examination of rabbits during the anaphylactic reaction by Auer and Robinson revealed marked and various changes of the heart's activity in twenty-two out of twenty-four animals. Changes occurred in fatal as well as in non-fatal cases, after the vagi were cut as well as when they were intact. Cardiac disturbances are thus a practically constant result of serum anaphylaxis in the rabbit. The authors suggest that it therefore is possible that anaphylaxis plays a rôle in the causatiaon of certain cardiac derangements in man.

61. **Microorganism Causing Epidemic Poliomyelitis.** — By employing a specially devised method Flexner and Noguchi have cultivated from the central nervous tissues of human beings and monkeys the subjects of epidemic poliomyelitis a peculiar minute organism that has been caused to reproduce the symptoms and lesions of experimental poliomyelitis. The microorganism consists of globoid bodies measuring from 0.15 to 0.3 of a micron in diameter, and arranged in pairs, chains and masses according to the conditions of growth and multiplication. The chain formation takes place in a fluid medium, the other groupings in both solid and fluid media. Within the tissues of infected human beings and animals the chains do not appear. No statement is ventured by the authors as to the place among living things to which the bodies belong. It is obvious that the cultural conditions are those that apply more particularly to the bacteria. The microorganism passes through Berkefield filters and the filtrates yield on recultivation the particular microorganism contained within the filtered culture. By employing a suitable staining method the microorganism has been detected in film preparations and sections prepared from human nervous tissues, and from the corresponding tissues of monkeys inoculated with the usual virus or with cultures or filtrates prepared from monkeys previously injected with cultures.

From all the infected materials mentioned, irrespective of the manner of their origin, the microorganism has been recovered in cultures. As would be expected, it is more uniformly recoverable from the original nervous tissues than from filtrates and doubtless for the reason that in the former it exists in greater abundance. An etiologic relationship has been shown to exist between the cultivated microorganism and epidemic poliomyelitis as it occurs in human beings or in monkeys. The authors describe their technic fully.

Journal of Outdoor Life, New York

October, X, No. 10, pp. 288-318

62 Campaign Against Tuberculosis in Norway. H. L. Shively, New York.
63 Doings of a Tenderfoot. F. T. Dawson, Schenectady, N. Y.
64 Advertising for Early Cases of Pulmonary Tuberculosis. H. L. Barnes, Wallum Lake, R. I.

Medical Record, New York

October 11, LXXXIV, No. 15, pp. 645-690

65 Modern Treatment of Tabes. J. Collins, New York.
66 *Use of Tuberculin in Diagnosis of Obscure Conditions in Genito-Urinary System. E. Beer, New York.
67 Paroxysmal Attacks of Metatarsal Pain. C. K. Austin, Paris, France.
68 Rational Treatment of Acne Pustulosa with Special Reference to Bacterins. P. G. Skillern, Philadelphia.
69 Social Service in Hospitals and Dispensaries. I. M. Stewart, New York.
70 Bacteriemia in Pneumococcus Infection of Rabbit. G. A. Rueck, New York.
71 New Method for Detecting Occult Blood in Gastric Cases. A. L. Holland, New York.
72 Method of Preparing Nerve Tissues for Microphotography. H. A. Sims, Montreal.
73 Small Self-Retaining Retractor for Superficial Dissections. K. Bulkley, New York.

66. **Tuberculin in Diagnosis of Obscure Conditions in Genito-Urinary System.**—Beer emphasizes the fact that the use of old tuberculin as a diagnostic aid should not be ignored, that it has a definite field of usefulness as an adjunct to other methods and it should regularly be employed only after other methods have rendered an unclear verdict, that is, in obscure cases, and then with carefulness and precautions.

Michigan State Medical Society Journal, Grand Rapids

October, XII, No. 10, pp. 513-568

74 District Supervision of Public Health. W. H. Sawyer, Hillsdale.
75 Public Health. C. J. Larson, Negaunee.
76 Some Diagnostic Points in Diseases of Eye and Nose, of Interest to General Practitioner. C. R. Elwood, Menominee.
77 Pleurisy as Considered by General Practitioner. W. S. Picotte, Ishpeming.
78 Trigeminal Neuralgia. H. M. Cunningham, Marquette.
79 Diagnosis and Treatment of Extra-Uterine Pregnancy. E. H. Flynn, Marquette.
80 Appendicitis in Infants. C. B. Gardner, Alma.

Military Surgeon, Chicago

September, XXXIII, No. 3, pp. 201-296

81 Greatest Battle of War—Gettysburg. L. C. Duncan, U. S. Army.
82 Gettysburg Veterans' Encampment from Medical Standpoint. H. S. Baketel, U. S. Army.
83 What Is Best Organization of Medical Department of Fleet for Battle, with Special Reference to Fleet Surgeon? C. N. Fiske, U. S. Navy.
84 Comparison of Recruits Accepted for Army During Different Periods Since Civil War, Based on Pignet's Factor. H. W. Jones, U. S. Army.
85 Egyptian Hospital Ship "Bahr Ahmar" of Red Crescent Mission. D. U. Carpenter, U. S. Navy.
86 Iodin Idiosyncrasy. A. G. Wilde, U. S. Army.
87 Cooperation Between Federal, Municipal and Naval Authorities in Prevention of Venereal Disease. G. B. Trimble, U. S. Navy.

Modern Hospital, St. Louis

September, I, No. 1, pp. 1-68

88 *Vast Increase in Number and Variety of Institutions Is Chief Factor in Reshaping Modern Society. A. J. Ochsner, Chicago.
89 Modern Naval Hospital. A. W. Dunbar, Washington, D. C.
90 Passing of "Hospital Unit." S. S. Goldwater, New York.
91 *Surgical Unit; European and American Architecture Compared—Description of Equipment. E. F. Stevens, Boston.
92 The Sanatorium—Yesterday, To-Day, To-Morrow. J. G. Mumford, Clifton Springs, N. Y.
93 Peter Bent Brigham Hospital. H. B. Howard, Boston.
94 The English National Insurance Act. S. Johnson, London.
95 Admission of Tuberculosis Cases to General Hospitals. T. B. Sachs, Chicago.
96 Social Service in Hospital. R. Shaeffer, Chicago.
97 Ownership of Roentgenograms. E. H. Skinner, Kansas City, Mo.

88. **Hospital Growth Marks Dawn of New Era.**—The modern hospital, says Ochsner, gives the public vastly more in the way of facilities for diagnosis, for furthering the progress of the case, with the smallest possible amount of discomfort. It provides for every form of apparatus for investigation during the entire period that the patient is confined to the institution. It provides facilities for all patients which could not have been commanded even by the very wealthiest persons only a quarter of a century ago, and it is but natural that such facilities must be expensive, but, with all of this, it is well not to lose sight of the fact that in the development and maintenance of these features there is great danger of enormous extravagance on the one side and hopeless waste on the other until the standardization of hospitals has been developed from the economical side by capable hospital specialists, and until those interested have been made familiar with this development through an advanced hospital journalism.

91. **The Hospital Unit.**—The hospital unit in Goldwater's opinion has served its day and purpose. To-day it is a stumbling-block in the road to hospital progress. Let us, therefore, by a common effort put it aside and turn to it only as we have need for it. No longer should it be permitted to occupy the middle of the road. He who looks on the hospital

unit as a miniature but complete hospital has failed to read aright the signs of the times. To-day the hospital unit is dependent not only on the central equipment of power plant, domestic service, etc., but on other ward units, designed primarily for other and specialized work. The internist, the general surgeon, the regional specialist, can no longer stand alone; therefore the ward unit, which is the clinician's workshop, has ceased to be an independent unit. The needs of the patients determine the right relation of members of the hospital staff to each other; to facilitate their relations is the great aim of modern hospital organization and construction. A single ward and its accessories no longer constitute a "hospital unit." To-day a ward is an incomplete fragment—the hospital is itself the unit.

New Jersey Medical Society Journal, Orange

October, X, No. 5, pp. 221-274

98 Uterine Hemorrhage. W. Freile, Jersey City.
99 Few Points in Clinical Treatment of Chronic Nephritis. W. B. Stewart, Atlantic City.
100 Treatment of Syphilis. A. S. Clark, New York.
101 Psychoses Associated with Childbearing. W. C. Sandy, Kings Park, N. Y.
102 Treatment of Some Cases of Dystocia of First Stage. A. R. Chamberlain, Maplewood.
103 Correction of Errors of Refraction as Prophylactic Measure. S. E. Pendexter, East Orange.
104 Pulmonary Tuberculosis. M. I. Marshak, Bayonne.

New Orleans Medical and Surgical Journal

October, LXVI, No. 4, pp. 269-342

105 Pelvic Infection with Special Reference to Needs of General Practitioner. S. M. D. Clark, New Orleans.
106 Emetine Hydrochlorid in Treatment of Amebic Dysentery. R. Lyons, New Orleans.
107 Operative Treatment of Inaccessible Vesico-Vaginal Fistulae. F. W. Parham, New Orleans.
108 Frequency and Causes of Stillbirth. W. D. Phillips and M. T. Lanaux, New Orleans.
109 Cases of Eclampsia. C. McVea, Baton Rouge.
110 Case of Cervical Myoma. M. A. Shlenker, New Orleans.
111 Quinin and Tetanus. F. W. Parham, New Orleans.

New York Medical Journal

October 11, XCVIII, No. 15, pp. 697-744

112 *Differential Diagnosis of Appendix by Roentgenoscopy. A. J. Quimby, New York.
113 Movements of Two Halves of Chest in Disease. L. N. Boston and J. F. Ulman, Philadelphia.
114 Tubercular Leprosy in Negress. J. L. Kirby-Smith, Jacksonville, Fla.
115 Roentgen Diagnosis of Diseases of Chest and Abdomen. L. Clendening, Kansas City, Mo.
116 Vagitus Uterinus. J. H. Telfair, New York.
117 Intravenous Injection of Salvarsan and Neosalvarsan. D. T. Miller, Terre Haute, Ind.
118 Physicians in English Literature. J. B. Neary, New York.
119 Value of Immunized Milk as Prophylactic and Cure for Typhoid and Tuberculosis Infection. J. Rosenberg, Margaretville, N. Y.

112. **Differential Diagnosis of Appendix by Roentgenoscopy.**—In the examination of 141 cases between May 1, 1913, and September 15, 1913, data were obtained by Quimby which enabled him to classify the appendix roentgenographically. Of this number, fifty patients had had laparotomies previous to the examination in which the appendix had been removed. Of the remainder, 90 per cent. gave sufficient data to determine the position and condition of the appendix. The remaining 10 per cent. were those in whom the position of the cecum prohibited its thorough inspection.

Ohio State Medical Journal, Columbus

September, IX, No. 9, pp. 503-562

120 Acute Pancreatitis. J. F. Erdmann, New York.
121 Case of Strangulated Femoral Hernia, Including Part of Bladder. L. B. Zintsmaster, Massillon.
122 Intestinal Intoxication and Thyreotoxicosis. B. L. Spitzig, Cleveland.
123 Hydronephrosis with Reports of Cases. H. O. Bratton, Columbus.
124 Pyonephrosis in Presumptive Single Kidney Operation—Recovery. C. S. Hamilton, Columbus.

Oklahoma State Medical Association Journal, Muskogee

October, VI, No. 5, pp. 185-228

125 *Surgical Treatment of Cancer of Lower Lip, with Report of 199 Cases. E. H. Beckman, Rochester, Minn.
126 Endocarditis. P. P. Nesbitt, Muskogee.
127 Diagnosis and Prognosis of Valvular Heart Lesions. R. W. Williams, Anadarko.
128 Functional Diseases of Heart. T. D. Renfrow, Billings.
129 Surgery of Heart. R. M. Howard, Oklahoma City.
130 Arteriosclerosis with Special Reference to Symptoms and Physical Signs. L. J. Moorman, Oklahoma City.

125. **Cancer of Lower Lip.**—The customary procedure employed by the Mayos in operating for cancer of the lower lip is described by Beckman. An incision is made three-fourths of an inch below the ramus of the jaw from one sternomastoid muscle to the other. This incision extends through the skin and platysma muscle. The reason for making the incision as low as this is to avoid the small branch of the facial nerve which swings down below the angle of the jaw and then returns on the face to supply the muscles about the angle of the mouth. Where it is necessary to remove only a small portion of the middle of the lip, Beckman says, a better cosmetic result is obtained by saving these branches of the facial nerves. If, however, it is necessary to remove more of the lower lip and widen the mouth by extending into the cheek it is not necessary to save these nerves.

Through this incision the skin and platysma muscle are reflected down to the hyoid bone and up to the inferior maxilla. All of the fascia and fat, including the submaxillary salivary glands, are removed from the submental and submaxillary triangles. It is necessary to ligate both the facial artery and vein. The blood-supply to the face is so abundant through the other branches of the external carotid that no sloughing from this cause has been seen. The hypoglossal nerve and the lingual branch of the trifacial are exposed on each side and should be saved. After the removal of the glands this primary incision is closed, drainage being established through small separate incisions on each side. The platysma muscle is stitched first and then the skin with a subcutaneous suture. The wound in the neck is then carefully protected and the operation on the lip begun.

A quadrilateral section, including the full thickness of the entire lip, is removed, running down nearly to the point of the chin. The section removed should include the growth and from one-fourth to one-half inch on each side into the healthy tissues. The coronary artery should be tied on each side. An incision is then made from the lower angle of the quadrilateral parallel to the ramus of the jaw on either side as far as is necessary to obtain enough tissue to close the defect. The entire flap from which the new lower lip is to be made should be freed well from the bone. These flaps are then sutured together in the mid-line with silkworm gut sutures, the skin being approximated with horse-hair. If the skin remaining over the point of the chin is too long to be approximated to the new lip so that it produces wrinkles, it is shortened by taking out a small triangle at one or both ends of the incision as shown by the accompanying diagram.

This is the technic employed in cases in which only a small portion of the lip is removed. If one-half or more of the lower lip must be removed, the primary incision is made in precisely the same way. In addition to the incision running from the lower end of the quadrilateral piece along the ramus of the jaw, it is now necessary to make incisions parallel to the former, extending from the corners of the mouth directly into the cheek. These incisions should extend slightly downward rather than upward. When the flaps on each side are thoroughly free, they are approximated as in the former case, the only difference being that the raw surface of the lower lip must be covered with mucous membrane as just mentioned. It is now seen that the lower lip is shorter than the upper, and also shorter than the skin remaining on the chin. These two latter are shortened by removing triangular pieces from the extremity of each incision, as shown in the diagram.

This plastic work was originated by C. H. Mayo and has not been described in the literature. From Jan. 1, 1907, to Dec. 31, 1911, there were 199 patients with cancer of the lower lip observed in the Mayo Clinic. Twenty-five of these 199 cases were diagnosed from clinical findings only and consequently cannot be proved definitely to have been cancer. The remaining 174 cases have been proved to be cancer by both clinical and pathologic diagnosis. One hundred twenty-six

patients had a radical operation performed as the first operation. Ninety-nine of these patients have been traced. Eighty-three have no sign of a recurrence either locally or in the glands of the neck. Sixteen have either died of their original trouble or now have a recurrence. Seven of these sixteen patients had glands involved at the time of their operation and three others had an extensive growth on the lip. Two of the 83 patients were examined just one year ago; 25, between one and two years; 17 between two and three years; and 4 over five years. In 18 of the above number glandular involvement was demonstrated by the microscope at the time of their operation and 9 of these, or 50 per cent., are among the cured cases. Twenty-five patients had a late radical operation, that is, removal of the glands of the neck following one or two local operations on the lip or following treatment by paste. Twenty of these patients have been traced. Fourteen are classified as cured and six as not cured, giving a percentage of 70 per cent. of cures in those patients having a late radical operation as compared with 83.6 per cent. of cures in cases that had radical operations as the primary treatment.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

September, XXXI, No. 121, pp. 193-288

1 Medicine and Its Practitioners during Earlier Years of History of Bath. J. Wigmore.
2 Hypernephroma or Mesothelioma of Kidney. J. Swain.
3 Nephropexy. J. L. Firth.
4 Mixed Infections. I. W. Hall.
5 Case of Cervical Rib. R. Waterhouse.
6 Three Cases of Ataxia. J. M. Fortescue-Brickdale.
7 Intermittent Swelling of Parotids. C. W. J. Brasher.
8 Ethical Aspects of Physical Research. DeL. O'Leary.
9 Hemorrhagic Diseases of Newborn, with Report of Case due to Duodenal Ulcer. J. H. Pinniger.

British Medical Journal, London

September 27, No. 2752, pp. 777-836

10 *Operative Treatment of Inoperable Cancer. C. Rowntree.
11 *Reaction of Blood-Serum as Aid to Diagnosis of Cancer. W. D. Sturrock.
12 Sarcoma of Uterus. J. H. Marsh.
13 Autoplastic Ovarian Graft and Its Clinical Value. B. Whitehouse.
14 Supposed Case of Pellagra. R. Reid and W. Calwell.
15 Affections of Heart in Childhood. F. J. Poynton and C. Coombs.
16 Surgery of Childhood. J. H. Nicoll.
17 Cardiac Efficiency from School Point of View. A. A. Mumford.
18 Choice of Methods in Dealing with Paralytic Deformities in Children. T. H. Openshaw and O. Foerster.
19 Diagnosis and Treatment of Acute Abdominal Inflammation in Children. C. B. Lockwood.
20 Necessity for Selection and for Skilled Supervision in Treatment of Spinal Deformities by Exercise. J. S. K. Smith.
21 Treatment of Acute Poliomyelitis (Infantile Paralysis). A. S. B. Bankart.

10. **Treatment of Inoperable Cancer.**—Rowntree is of the opinion that at present we do not do enough for our cases of advanced cancer, and is convinced that the immediate future holds out a good deal of promise as regards the palliation of this miserable condition. An important preliminary to this should, he thinks, consist in the banishment of the dreadful sense of hopelessness and finality that the present usage of the word "inoperable" creates. He favors the performance of limited operations for the alleviation of incurable cases of cancer.

11. **Reaction of Blood-Serum in Cancer.**—The method described by Sturrock is based on that of Moore and Wilson, but contains several modifications which he believes increases its clinical value. He examined many cases by Moore and Wilson's method, but found definite results difficult to obtain. The veins of the forearm are engorged, a suitable vein is chosen, and the overlying skin purified; the vein is then punctured with the needle of an antitoxin syringe, and the issuing blood collected in a small test-tube of about 3 c.c. capacity. The tube is rather more than half filled and the mouth closed with a plug of cotton-wool. It is then left in a vertical position for twenty-four hours, and afterward centrifugalized to obtain clear serum.

A series of dilutions of normal sulphuric acid is prepared and kept in well-stoppered bottles; the dilutions run in series as follows: fourth-normal, four and five-tenths normal, fifth-normal, etc., to seventh-normal, and are thus seven in number. They must be tested from time to time against sodium carbonate of known strength, and should be found to remain constant for a considerable time. When required for use, a small quantity of acid is, after shaking, poured into a watch-glass or, preferably, a small glass staining dish.

Two drops of a 1 per cent. alcoholic solution of dimethyl are dropped on a filter paper. A small quantity of distilled water is then drawn into a capillary pipet, a bubble of air allowed to follow, and, after this, serum drawn as far as a mark about 3 cm. up the pipet; a second bubble of air is then admitted, and, finally, the particular acid solution required is drawn up to the same mark. The pipet now contains equal quantities of serum and acid and a trace of distilled water. The contents are blown out on a porcelain slab, thoroughly mixed by aspiration, and finally blown out on the center of the dimethyl drop. If no pink appears in the center of the yellow drop, the process is carried out with stronger acid solution till the pink change first occurs. If, on the other hand, pink appears at the first attempt, weaker acids are used until the change is no longer obtained. The dilution which gives the first pink reaction is taken as the index; if, for instance, pink appears with fifth-normal acid, but not with five and five-tenths normal, the alkalinity to dimethyl of the serum is reckoned as equivalent to fifth-normal or two-tenths normal.

To prevent absorption of alkali from glass, all the glass materials used are subjected to immersion in strong hydrochloric acid, and are afterward thoroughly washed in distilled water and finally dried in an oven at 110 C. (230 F.). The average alkalinity of the cancer series examined was one hundred and ninety thousandth normal, higher than that of the non-malignant—that is, one hundred and seventy-three thousandth normal. It appears that a reading of two-tenths normal or over affords some presumption of the presence of cancer, and in Sturrock's opinion it is sufficient to justify an exploratory operation in doubtful cases.

Journal of Tropical Medicine and Hygiene, London

September 15, XVI, No. 18, pp. 273-296

22 Plague. W. G. Liston.
23 Relationship of Tarbagan (Mongolian Marmot) to Plague. Wu Lien Teh.

Lancet, London

September 27, II, No. 4709, pp. 511-976

24 *Causes of Failure of Women To Nurse Their Infants at Breast. H. C. Cameron.
25 *Syphilis: Its Dangers To Community and Question of State Control. H. C. French.
26 *Bacillus Lepraе: Has It Been Cultivated? H. Fraser and W. Fletcher.
27 Pathology of Condition Known as Parasyphilis. J. McIntosh and P. Fildes.
28 Radium Rays in Treatment of Hypersecretion of Thyroid; Report of Four Cases. D. Turner.
29 *Treatment of Umbilical Hernia in Children by Subcutaneous Elastic Ligature. J. Fraser.
30 Helminthiasis in Bassa Province, Northern Nigeria. J. E. L. Johnston.
31 *Suppurating Endothelioma of Meckel's Diverticulum Simulating Appendicitis. T. Carwardine.
32 Indications for Operation on Cerebral Tumor from Point of View of Ophthalmic Surgeon. L. Paton.
33 Case of Cerebral Abscess. H. F. Renton.
34 Advanced Carcinoma of Cervix Uteri Containing Twins Treated by Vaginal Hysterectomy. H. B. Mylvabanam.

24. **Failure of Women to Nurse Their Infants.**—The truth of the statement that modern women, just because they are modern women, far removed from the primitive conditions of life, suffer from any degeneration of the mammary gland, is denied by Cameron. He says that there is no proof whatever that racial development is in the direction of atrophy of the gland or of degeneration of its functions. Secondly, he points out that we should remember that the force which brings the mammary gland to free secretion is provided by the vigorous sucking of the child. When the infant is born there is but little milk in the breast, while in a few days, after a strong, healthy infant has begun to suck, milk flows

in abundance. If two infants are nursed the amount of milk doubles itself; if one is taken away the amount is reduced by half. Cameron knows no way in which the secretion of milk can be stopped save by a complete removal of the child. Lastly, and most significantly of all, if for any reason only one breast is used, that breast alone secretes milk, while the other remains dry.

These commonplace observations, Cameron states, show that the main factors which determine the initial secretion of milk in the mother's breast reside in the child and not in the mother. When the child has a good appetite, sucks well and empties the breast completely the amount of milk secreted increases with each nursing. Let some accident diminish his appetite for a few days—some slight pyrexial disorder, for example, or a trifling dyspepsia—then with diminished suction less milk is secreted, and the infant involuntarily imposes on himself a period of partial starvation.

There is, however, a second provision against the danger of overfeeding and dyspepsia in breast-fed infants. The composition of milk varies within wide limits during a single nursing. The first milk drawn off is relatively dilute; the last milk is so rich in fat that it may almost be considered as cream. With feeble suction and insufficient emptying of the breast the last concentrated milk is not obtained, and the food of the sick child becomes relatively dilute. In these two ways Nature guards very efficiently against overfeeding, and as a result dyspepsia from simple overfeeding is a much less common and less severe disorder in breast-fed infants than in those babies who are fed on the bottle, the contents of which are of unvarying composition and always ready to flow freely into the infant's mouth in response to a minimum of effort on his part.

In some cases, however, Nature seems to have been, as it were, overcareful—to guard so well against the overfeeding of the feeble or sick infant as to cause some risk of inanition and drying up of the mother's breast. This is especially so, Cameron thinks, in first-born infants. No doubt the first labor is prone to be protracted and difficult, and the child as a result tends to be exhausted or even slightly asphyxiated, and is apt to lie in a drowsy condition, with little appetite and little vigor in sucking. Apart from this effect on the child, which in all but a few severe cases is quite transitory, the breast which is becoming functional for the first time is slower to secrete and requires a greater effort on the part of the child than does the breast of a multipara. At any rate, there appear to be but few cases in which the first baby suffers severely from inanition while the later children thrive from the beginning. On the other hand, when the nursing of the first child has been very easy, the second is more likely to suffer from dyspepsia as the result of overfeeding. Although no doubt women differ considerably in their response to the stimulus of the infants' sucking, it remains true that the main factor which controls the secretion of milk is provided by the sucking of the child.

Overwork and underfeeding of the mother in the later months of lactation can doubtless produce deterioration of the quality of the milk, but in the first establishment of the milk the part of the mother, provided that the nipples are well formed, is comparatively a passive one, and the breasts of a woman in the last stages of exhaustion from some debilitating disease may be full of milk for some time after labor, provided only that the child is strong and hungry.

25. **Syphilis and State Control.**—French's essential opinions in the control of prostitution and venereal diseases culled from twenty years' practical experience in many countries are as follows: Confidential medical notification of disease on prima facie evidence and medical treatment for short periods in hospital in the early actively contagious stages of disease, the steps taken being dependent on environment and the circumstances of the individual case. The effectual control of openly practiced prostitution by adequate police measures for irreclaimable prostitutes. The rigid suppression of souteneurs who act as middlemen and live on the earnings of women, and even marry with this object in view. The protection of orphan children and minors and the suppression of begging in the streets by children under 12 years of age. The suppression of loitering and solicitation in the streets by women or men acting on their behalf. The provision of "free voluntary dispensaries" where women who do not openly practice prostitution (clandestines) may be treated and reclaimed. Removal of disorderly persons from the towns, and measures to prevent the return of evicted persons, and to prevent harboring of diseased merchant seamen, who spread the worst form of disease at seaport towns. Control of persons seeking medical aid from chemists for venereal diseases, who spread their complaints broadcast and maintain syphilis in perpetuity. Circumcision of male infants and all recruits entering the army with phimosis. Punishment by fine or imprisonment for concealing disease, or for transmitting it knowingly to another. The marriage of syphilitics discouraged by law under ten years from date of contracting the disease.

26. **Bacillus Lepræ.**—Material for purposes of cultivation on various mediums has now been obtained by Fraser and Fletcher from thirty-two non-ulcerating nodular cases of leprosy, and 373 inoculations made on the various culture mediums. They have consistently failed to obtain a culture of the *Bacillus leprae*. There is no doubt in the author's minds that material swarming with bacilli has been employed on each occasion. This was clearly demonstrated by the microscopic examinations which were made in every case. From the examinations made of nodules which have been incubated on culture mediums for periods ranging from a few days to nine months, no evidence has been obtained that the bacilli had increased or lessened in number. They point out that any one who has examined smears prepared from freshly excised leper tissues must be struck with the enormous masses of acid-fast bacilli present, and they are unable to comprehend how it is possible to state in a case in which no macroscopic growth is apparent that an increase, recognizable only by the microscope, has occurred.

29. **Umbilical Hernia in Children.**—The operation is not performed by Fraser on children below the age of 6 months, and in the majority of cases, he says, it is of advantage to wait until the child is 1 year old. During the preoperation period the application of a pad or of inversion may be practiced, and if cure results without operation so much the better. The size of the opening in the abdominal wall is considered in judging the suitability of the case. A large opening is unsuitable for operation by this method, as there is later a tendency to recurrence. The rough guide which Fraser uses is the tip of the little finger—an opening which is large enough to admit this is considered unsuitable. It is essential that the sac be empty; irreducible contents of any description whatsoever must be looked on as an absolute contra-indication to the operation. As long as the opening in the parietes is suitable the size of the sac need not be taken into consideration. The method has been practiced on twenty-one patients. The procedure does not occupy more than a couple of minutes in the accomplishment, and the after-treatment is of the most simple description. The preliminary treatment consists in a thorough evacuation of the bowels and the reduction of flatulence by suitable dietary before operation. The essential material is a piece of elastic cord ⅛ inch in diameter and about 3 inches long.

The technic of the operation is as follows: The skin over the fundus of the protrusion is grasped with a pair of dissecting forceps, and skin and sac are pulled gently upward from the abdominal wall. Great care is exercised in ascertaining that the contents of the sac are completely reduced. Three small incisions are made at equal intervals around the periphery of the sac, at the point where the skin is reflected on the abdominal wall. These incisions penetrate the skin and subcutaneous tissues, but they must not injure the sac. With a blunt dissector it is now possible to undermine the tissues around the pedicle of the sac—the three radiatory incisions facilitate the performance of this. The elastic ligature is now pulled beneath the skin, following the track of separation. This is most conveniently done by means of an artery forceps, which pulls the ligature as

tightly as possible around the pedicle of the sac and fastens it so with a stout piece of silk. The ends of the elastic ligature are left protruding through one of the incisions, and they are cut to a convenient length; a simple dressing is applied and kept in position by means of a band of adhesive plaster. The ligature is allowed to remain in position for six days and then removed by cutting the silk knot. The opening which it leaves quickly closes.

31. **Suppurating Endothelioma.**—In Carwardine's case free fluid was present in the peritoneum, serous generally, but purulent in the right loin. A gangrenous broken-down mass was found, originating in a Meckel's diverticulum, and necessitating the resection of 15 inches of the small intestine. The appendix was normal. The patient remains well.

Annales de Médecine et Chirurgie Infantiles, Paris

September 15, XVII, No. 18, pp. 597-632

35 Relations between Appendicitis and Diverticulitis. M. Guibé.

Archives des Maladies de l'App. Digestif, Paris

August, VII, No. 8, pp. 421-480

36 Causes of Defective Digestion of Cooked Starch. (Etude coprologique sur les causes du déficit d'utilisation de l'amidon cuit.) R. Goiffon.
37 *Tests for Occult Blood in Gastro-Intestinal Tract. G. L. Hallez. Commenced in No. 7.

37. **Testing for Occult Gastro-Intestinal Hemorrhage.**—Hallez fed animals with measured amounts of blood and then applied to the stools and stomach content the various tests in vogue to detect invisible blood. The conditions thus closely approximated those with natural hemorrhage in the stomach or bowel, and the findings confirmed anew the remarkable delicacy of the current tests, especially the Weber, the Meyer and the Adler technics. No meat or raw vegetables should be eaten for three days before the test is applied, and no drugs taken.

Archives Générales de Médecine, Paris

August, XCII, No. 8, pp. 677-768

38 Hemorrhage in Operations on the Throat. Mermod.
39 Physiotherapy in Asthma. E. Perpère.

Archives de Médecine des Enfants, Paris

September, XVI, No. 9, pp. 641-720

40 *Initial Localization of Pulmonary Tuberculosis in Children and Involvement of the Apex. C. Leroux.
41 Pediatrics in Connection with General Welfare Work for Children. E. Deutsch.

40. **Initial Localization of Pulmonary Tuberculosis in Children.**—Leroux gives a number of skiagrams of children to sustain his assumption that in infants and quite young children the initial localization of tuberculous infection is toward the base or the middle part of the lung in the majority of cases. The focus even with involvement of adjoining lymph-nodes and later of the corresponding lymph-nodes on the other side, may give no clinical sign of its presence, but it shows up on roentgenoscopy. Before the age of 2, the tuberculous process generally proves fatal, but after this age skiagrams taken at intervals during months and years show that the pulmonary affection usually passes through three phases: first there is the primary focus, then a stage of tuberculous processes in the tracheobronchial lymph-nodes, and then the apex becomes involved or there is secondary reinoculation of the apex. In older children, as in adults, the primary process seems to localize preferably at the apex; the lymph-nodes are affected only secondarily or later, but they become involved more regularly than is the case in adults. The skiagrams given show the low focus, then the phase of involvement of the tracheobronchial lymph-nodes, and finally the involvement of the apex. This is the usual course in young children. In children of 10 or more the apex is first involved and later the tracheobronchial lymph-nodes and the apical process heals in the favorable cases, and later the lymph-nodes.

Journal de Chirurgie, Paris

September, XI, No. 3, pp. 269-408

42 Operative Treatment of Fractures. (Traitement sanglant des fractures de jambe récentes et anciennes.) C. Dujarier. (Le traitement des fractures graves suivant la technique de Lambotte.) P. Fredet.

Lyon Médical, Lyons

August 31, XLV, No. 35, pp. 329-372

43 The Jugular Pulse. (Le pouls veineux jugulaire physiologique et son interpretation.) M. Petzetakis.
44 Institutional Care in Obstetric Cases. (Natalité et maternités.) J. P. Morat.

Revue Mens. de Gynéc., d'Obstét. et de Pédiat., Paris

August, VIII, No. 8, pp. 465-508

45 *Pyelonephritis in Pregnancy. O. Pasteau.
46 Prophylaxis of Uterine Cancer. L. M. Bossi.
47 Spontaneous Rupture of Ovarian Cyst During General Anesthesia; Two Cases. M. Patel.

45. **Pyelonephritis of Pregnancy.**—Pasteau insists on the great difference between pyelonephritis developing in the course of pregnancy or developing first after delivery. The former should be treated by simple measures, therapeutic distention of the bladder to its physiologic capacity, the patient reclining with only the head raised above the plane of the bed, with hexamethylenamin to sterilize the urine. This reduces the congestion in the small pelvis, stimulates the kidney secretion and modifies the urine, and thus combats the causes of the retention and helps in the evacuation of the kidneys. These measures alone generally suffice, and a complete transformation and cure usually follow delivery. The indications are quite different with pyelonephritis coming on after delivery. This requires systematic catheterization of the ureter, evacuating and rinsing out the kidney pelvis. The trouble in this case must be treated with the greatest care and perseverance or the kidneys are liable to become seriously and permanently impaired. Only when there is great distention of the kidney, with fever and a bad general condition, is nephrostomy indicated, but when this is needed, it often brings about a complete cure.

Semaine Médicale, Paris

September 17, XXXIII, No. 38, pp. 445-456

48 *Diagnosis of Tuberculous Salpingitis. R. de Bovis.

September 24, No. 39, pp. 457-468

49 *The Renal Element in Glycosuria. R. Lépine.

48. **Diagnosis of Tuberculous Salpingitis.**—De Bovis remarks that tuberculous processes in the uterine adnexa are more frequent than generally recognized; Labhardt found them in 22 per cent. of all his ovary and tube patients. In differentiation, bacteriologic examination of the uterine secretions, the infantile status of the genital organs, menstrual disturbances, persisting fever and recurring mild diarrhea or symptoms of mild pelvic peritonitis—all these speak for a tuberculous process in the adnexa, while tuberculin tests do not reveal whether the tuberculous lesions are here or in the lungs or elsewhere. In virgins or in women who have never had puerperal complications or have never been exposed to gonorrhea, salpingitis is almost invariably of tuberculous origin. Lesions of this nature are liable to fluctuate in size as the tube becomes obstructed or becomes the seat of congestion from various causes. These transient congestions are probably responsible for the recurring mild peritonitis symptoms. Castano recently based his diagnosis on this sign, having witnessed that the tubes varied from the size of an egg to that of an orange at different times and became very painful, and tubercle bacilli were found in the discharge from the uterus. Variable palpation findings of this kind are more regular and constant with tuberculous salpingitis than with any other conditions, and this variability affords strong presumptive evidence of the tuberculous nature of the trouble in the adnexa.

49. **The Renal Element in Glycosuria.**—Lépine called attention to the subject some eighteen years ago, and here analyzes the various communications on renal diabetes and phloridzin glycosuria that have been published since that date. He suggests in regard to phloridzin glycosuria that the molecules of the phloridzin and its derivatives can pass through the kidney only by an actual effraction, that is, breaking their passage through by force. Sugar molecules, following in their steps, can slip through the breaches thus produced in the kidney filter. This explains how we get the clinical picture of glycosuria with only the normal proportion of sugar in the blood or even less than this.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXVIII, No. 1, pp. 1-153. Last indexed Sept. 13, p. 903

50 *Treatment of Hemoptysis with Intravenous Hypertonic Salt Solutions. H. Müller.
51 Modification of Pirquet Tuberculin Reaction under Influence of Kumyss. W. I. Glintschikoff.
52 *Tuberculosis in Village in Thuringia. J. Fürbringer.
53 *Therapeutic Pneumothorax in Treatment of Purulent Tuberculous Exudate in the Pleura. A. Rösler.
54 Local Conditions Predisposing to Pulmonary Tuberculosis. A. Bacmeister.

50. **Treatment of Hemoptysis with Saline Infusion.**—Müller calls attention to the often remarkable effect of intravenous saline infusion in arresting hemorrhage, and commends it in treatment of hemoptysis. Salt promotes coagulation, and it is an old traditional remedy for hemorrhage; von den Velden by systematic experiment and clinical research has confirmed its efficacy in this line and explained in part the mechanism of its action. He attributes it to the marked exchange of fluids between the blood and the tissues under the modification of osmotic conditions which follows ingestion or injection of salt. This evidently mobilizes substances which promote coagulation, and the effect is naturally more rapid and more intense when the salt solution is injected directly into the blood stream. The blood becomes more fluid and at once it coagulates more readily, the maximum effect being reached in fifteen or twenty minutes and then subsiding in the course of an hour. He reported in 1909 seven cases of hemoptysis in which the tendency to hemorrhage was thus arrested at once. Müller has found only four articles on the subject published since, and none of a comprehensive character like the communication he here presents. In it he reviews his experiences with the measure in fifty cases during the last eighteen months, giving the details of each case, classified according to the extent of the hemorrhage and the stage of the pulmonary tuberculosis. He does not hesitate to affirm that infusion of a hypertonic salt solution is more reliable than any other measure to date. The best technic seems to be by intravenous injection of 5 c.c. of a 10 or 15 per cent. solution of salt. The injections are entirely harmless, he states, and cause no pain. All tendency to hemoptysis is arrested almost without fail in case of slight or moderate bleeding (up to 100 c.c.), in the predominantly fibrous form of pulmonary tuberculosis. With more than 100 c.c. of blood, the injection often answers the desired purpose, and hence should always be tried, although it sometimes fails. The fibrous form of tuberculosis is more amenable to the measure than the ulcerative. In only five of the total fifty cases was no benefit observed; in twenty-one cases the tendency to hemorrhage was permanently arrested; in thirty-five cases the hemorrhage was arrested at once but it returned a few days later in fourteen in this group. In four other cases the existing hemorrhage was not modified, but the hemorrhagic tendency thereafter seemed to have been arrested. The injection should be given during the hemorrhage and after its arrest he recommends a second and possibly a third injection during the day to ward off recurrence. Müller comments on the depressing influence of hemoptysis on both body and mind, and the advantages of arresting it at once by this simple and harmless measure which can be applied by any practitioner. If the tendency to hemorrhage fails to yield to the saline infusion, he advises a therapeutic pneumothorax or thoracoplastic operation to squeeze the lung into smaller compass and thus mechanically conquer the tendency to hemorrhage.

52. **Medical Inspection of Entire Community.**—The village in question has a population of 470 and the authorities sent Fürbringer to examine into the causes of the exceptionally high death-rate from tuberculosis. His research seems to have been conducted along model lines and he emphasizes the important lessons learned from this intensive study of public-health conditions in a small poverty-stricken community. He regards the lack of training in domestic science, in vegetable gardening and in raising rabbits for meat, as the predominant factors in the general thriftlessness and consequent liquor drinking and morbidity. The income of the families is rarely over $175 a year, and never much higher, and yet the average expenditure of each family for liquor was $51 in the last year for which the figures are obtainable.

53. **Therapeutic Pneumothorax in Treatment of Tuberculous Empyema in the Pleura.**—Rösler has only two cases to report, but the results were excellent in these very serious and advanced cases. He consequently commends evacuation of the cavity and injection of nitrogen in its place as an important measure in all such suppurative exudates over a tuberculous lung. The distressing symptoms were relieved at once and cough and expectoration subsided entirely in one case. In the other, the tuberculous laryngitis and enteritis continued their course but life was prolonged and rendered bearable. The greater or less tendency to cirrhosis displayed by the lung tissue is evidently the deciding factor as to the outcome in tuberculous pulmonary affections.

Berliner klinische Wochenschrift

September 15, L, No. 37, pp. 1693-1740

55 Cultivation of Micro-Organism of Epidemic Poliomyelitis. S. Flexner and H. Noguchi.
56 Elimination of Hexamethylenamin Through the Mucous and Serous Membranes. (Zur Sekretion des Urotropins durch Schleimhäute und serose Häute.) A. Leibecke.
57 Vaccine Therapy of Gonorrhea. J. Gerschun and J. Finkelstein.
58 Percussion of Spine in Diagnosis of Apical Lesions. (Diagnose der Lungenspitzenerkrankungen und die Perkussion der Wirbelsäule.) Rüde.
59 *Orthodontia. J. Grünberg.
60 Advantages of Duodenal Feeding with Cirrhosis of the Liver. M. Einhorn.
61 *The Reflexes. (Ueber Sehnen- resp. Muskelreflexe und die Merkmale ihrer Schwächung und Steigerung.) E. Trömner.
62 Study of Experimental Mercuric-Chlorid Nephritis. (Die Nierenfunktion bei der durch Sublimat erzeugten Nierenentzündung.) M. Ghiron.
63 The Wassermann Reaction in Malaria. (Ueber den Ausfall der Müller-Brendel'schen Modifikation der Wassermann'schen Reaktion bei Malaria.) H. Zschucke.

59. **Correction of Deformity of the Jaws.**—Grünberg pleads for the cooperation of dentists and orthopedists to correct protruding or receding jaws in order to make the teeth work better and thus improve the general health while improving the appearance. He merely seeks to have the principles advocated by E. H. Angle better understood and applied more generally. The article is accompanied by twenty illustrations showing conditions "before and after," and illustrating anew the advantages of orthodontia.

61. **The Reflexes.**—Trömner gives an illustrated description of his methods for eliciting tendon and muscle reflexes, and discusses the signs of attenuation or exaggeration of reflex action. He insists that the whole science of reflex action is much simpler than generally recognized, and that reflex irritability is a physiologic property of every voluntary muscle. Many more reflexes can be elicited in the healthy than has hitherto been deemed possible. Different persons vary in this respect; in some twenty different reflexes can be elicited; in others only four. He has never encountered but one person in whom it was impossible to elicit any reflex action except a weak knee-jerk. He states that it is possible to elicit some of the ordinary reflexes by several methods instead of the classic one usually followed; the Achilles reflex, for instance, can be induced, even more promptly than with the usual technic, by striking gently on the sole of the shoe or on the ball of the bare foot covered with a pleximeter.

He regards joint and periosteum reflexes as essentially muscle-reflex action. This is shown most convincingly in what he calls percussion muscle-excitability (PME); for example, when the knee is raised a little on a cushion, the pleximeter laid across the quadriceps above and struck with the hammer, a reflex contraction follows. It is weaker than that when the tendon is struck because the concussion is spread across the muscle and not lengthwise, but the contraction occurs *en masse* because it is a true reflex contraction. It does not occur therefore in tabes or polyneuritis, while it occurs with greater intensity when the reflexes in general are increased.

At the same time, there is a change in the sound of the stroke on the muscle; in both the tendon and the mass of a reflex-dead muscle, the sound is duller and more doughy

than in normal or reflex-exaggerated muscles. When the reflex is lost on one side only, the mere sound will tell whether the normal or the reflex-dead muscle is tapped. It is immaterial whether the concussion of the muscle is produced from above or below, so that nearly all the reflexes can be elicited in three or four different ways. He gives illustrations of the various types described, and states that in health all the larger muscles will respond with reflex action, and the absence of reflex action in several of these muscles should suggest possible organic disease. With exaggerated reflex excitability, there may be crossed reflexes, especially with the pectoral and quadriceps muscles. With the crossed type, the symmetric muscles respond only to stimuli from the sound side. Another important sign is what he calls contrareflex action in case of exaggerated reflexes—the reflex action occurring on tapping the opposite side of the limb.

These signs, he says, afford objective data where hitherto we have been restricted to subjective estimation of abnormally increased or decreased reflex action. The pathognomonic signs are: distinct and extensive percussion muscle-excitability; rare crossed reflexes, as, for instance, of the pectoralis; reflex excitability of otherwise non-excitable muscles, such as the flexors of the toes; and certain clonic phenomena—these all point to organic causes. His "calf phenomenon" has never failed to be more sensitive even than the Babinski, while it has equal diagnostic significance. He gives an illustration of the method of eliciting it, stroking the calf from the back of the knee downward. Independently of each other, Redlich, Gordon and Trömner found that this stroking the back of the calf downward, with some pressure, elicits dorsal flexion of the foot in case of organic increase in the reflexes. In health there is little if any reflex movement. Trömner's experience with this calf phenomenon during the two years since it attracted his attention has confirmed in every respect his first assertions in regard to it (summarized in THE JOURNAL, Oct. 21, 1911, p. 1411). It proved extremely useful for the differential diagnosis in a number of cases in which the Oppenheim sign was absent and the Babinski faint and doubtful. He has found that the Babinski can sometimes be made more prominent by pressing with the thumb on the posterior margin of the tibia.

Deutsche medizinische Wochenschrift, Berlin

September 18, XXXIX, No. 38, pp. 1817-1864

64 *Arteriosclerosis. C. Hirsch and O. Loeb.
65 *Paroxysmal Tachycardia. R. Kaufmann and H. Popper.
66 *Bacteriology of Surgical Tuberculosis. (Zur Aetiologie der Knochen- und Gelenktuberkulose.) B. Möllers.
67 Compression in Treatment of Acute Pleural Empyema. B. Hahn.
68 *Sterilization of Small Amounts of Drinking Water. (Ein neues Verfahren der Chlorkalksterilisation kleiner Trinkwassermengen.) H. Langer.
69 Trocar-Endoscopy. (Ueber Endoskopie geschlossener Höhlen.) S. Nordentöft.

64. **Arteriosclerosis.**—Hirsch discusses the various theories as to the causes of hardening of the arteries, inclining to the view that both mechanical and chemical factors are involved. He thinks it probable also that the elasticity of the artery walls may be reduced for a time before it is possible to detect histologic change in the tissues.

Loeb has succeeded in inducing experimental lesions in the arteries of dogs, the first time, he thinks, this has been realized in animals other than rabbits. His experiments have demonstrated that lactic acid is concerned in the production of arteriosclerosis. This is significant because during severe muscular work the proportion of lactic acid in the blood may increase from the normal 15 or 30 mgm. to 150 mgm. in 100 gm. of blood. He remarks that this may throw light on the predisposition to disease of persons doing unaccustomed heavy work. He urges special study as to changes in the production of lactic acid in connection with arteriosclerosis. His research has further shown that overstretching of the wall of the artery renders it less resistant to the action of toxins; the resisting power is least at the points where the metabolism differs most from repose metabolism, either from active exertion of the contractile elements or overstretching. He suggests that the difference in the food between that of rabbits and of dogs may explain the greater susceptibility of the former to arteriosclerosis; experiments in this line with dogs are now under way, giving them no meat or other albumin. The results already observed suggest that it may be possible to limit the production of lactic acid in human beings by avoidance of overexertion and by dietetic restrictions, on the one hand, and on the other hand, it may prove possible to annul its toxic action by administering some ammonia-producing substance or the like.

65. **Paroxysmal Tachycardia.**—Kaufman and Popper reported some time ago an interesting case of disturbances from constant abnormal irritability of the supraventricular segment of the heart in a man of 27. Varying conditions of heart-block kept modifying the clinical picture, attacks of paroxysmal tachycardia alternating with irregular heart action and pulse. With the newer methods of examination it was found that the paroxysmal attacks proceeded from Tawara's node, while the arhythmia could be traced to changes in the starting-point of the contractions of the heart, and to varying degrees of sino-auricular block. Under large doses of physostigmin, combined with strophanthus, the attacks of tachycardia became attenuated and ceased, while the subjective and objective symptoms became improved and the heart action passed into another form of arhythmia—the so-called perpetual arhythmia from auricular fibrillation. This form of arhythmia was then kept controlled by atropin; this transformed the arhythmia into a permanently regular pulse of normal frequency. The case confirms anew the efficacy of physostigmin in paroxysmal tachycardia of atrioventricular origin, and it throws light on the close connection between true perpetual arhythmia and certain other forms of arhythmia which are the work of foci of irritability located elsewhere. The case is further an interesting example of the practical therapeutic importance of the study of arhythmias with the sphygmograph and electrocardiogram.

66. **Surgical Tuberculosis.**—Möllers states that including the twelve cases here reported (including three children between 5 and 16) there are now 163 cases of bone and joint tuberculosis on record with careful bacteriologic examination, with the finding of bovine tubercle bacilli in only four cases. That is to say, that in only 2.45 per cent. of 163 cases reported by fifteen different writers were bacilli of the bovine type discovered. This is in marked contrast to Fraser's recent report of 72.72 per cent. of the bovine type in children under 5 and 45 per cent. in older children, in a total of seventy operative cases, all but three in children under 12.

68. **Sterilization of Drinking-Water on Small Scale.**—Langer states that the taste of the water is not impaired by the method he describes and has found extremely effectual in sterilizing even highly contaminated drinking-water. He uses chlorinated lime *(Chlorkalk)* in the proportion of 0.5 gm. to the liter, mixed with an equal amount of common salt to prevent clumping. After ten minutes the taste of the chemicals is removed by neutralizing with sodium percarbonate. The resulting effervescence lasts for about five minutes during which the lime is transformed into an insoluble compound which can then be filtered out. Thus in less than half an hour the badly contaminated water is made palatable and safe to drink. The slight salty taste left he does not regard as disagreeable.

Medizinische Klinik, Berlin

September 14, IX, No. 37, pp. 1485-1524

70 Emotional Disturbances in Mental Disease. (Affektsstörungen bei Psychopathen.) O. Pförringer.
71 *Pyelitis in Young Children. L. Langstein.
72 Transplanting the Fibula to Substitute Shaft of the Tibia. M. Brandes.
73 *Nocturnal Enuresis in Adults. F. Trembur.
74 Recurrence of Scarlet Fever; Three Cases. Lämmerhirt.
75 Dietetic Treatment of Gastric Ulcer. L. Bamberger.
76 Reciprocal Relations between the Thymus, Thyroid and Lymphatic System. F. Poenagen.

71. **Pyelitis in Children.**—Langstein states that in most cases the pyelitis has been preceded by an acute infectious disease, influenza most often. Whooping-cough, scarlet fever and megacolon are particularly liable to entail pyelocystitis.

He says that the clinical pictures with pyelitis differ more widely in individual cases than with any other disease in the pathology of the child. The toxic form is the most severe in its manifestations; he encountered a number of cases of this kind among breast-fed infants during the heated term. The temperature ran up to 42 C., the weight dropped, and unconsciousness and vomiting were accompanied in some cases with diarrhea. The children had been previously healthy, and at first heat-stroke was assumed, but the urine was found to consist almost entirely of pus. Some of the children recovered. In other cases the symptoms suggested meningitis or pneumonia. The pyelitis was accompanied by jaundice in some cases. The urine was entirely limpid at times; he explains this as the result of obstruction of one ureter so that only the urine from the sound kidney reached the bladder. In some cases the urine was hemorrhagic at first and he thinks that this hemorrhagic early phase has probably in some cases led to mistakes in diagnosis.

Langstein emphasizes the importance of lack of water and lack of nourishment as a factor in the clinical picture of pyelitis. He frequently witnessed a complete transformation follow suddenly on copious intake of water, even when the uremic symptoms were pronounced, and he urges the necessity for watching over the water-supply of infants in such cases. With differentiation in time and proper treatment, 90 per cent. of the children recover. Even with persisting pyuria for a year or more, the general condition can keep fair and the child may thrive comparatively on proper nourishment. On the other hand, years later, contracted kidney may develop as in a case described in which pyelitis in infancy was followed by kidney changes and fatal uremia at 8. This was the only case in his experience in which these conditions followed the pyelitis, but Heubner has encountered a number of such cases. To supply water and nourishing food in adequate amounts may require the use of the stomach tube as the children generally have no appetite. He has found phenyl salicylate (0.6 to 1 gm. daily) more effectual than hexamethylenamin. He suggests that something of the kind should be used systematically in the prevention of pyelitis in the course of scarlet fever or influenza. His experiences with vaccine therapy were not encouraging.

73. **Enuresis in Adults.**—Trembur found by roentgenoscopy and cystoscopy in thirteen cases of nocturnal enuresis in adults that the development of the lower portion of the spinal cord was defective, and that there were signs of malformation or other anomalies. He thinks that there is no doubt that enuresis persisting from childhood is in most cases a manifestation of such myelodysplasia.

Münchener medizinische Wochenschrift

September 16, LX, No. 37, pp. 2033-2096

77 Luetin Skin Test in Progressive Paralysis. L. Benedek.
78 Experimental Syphilis of the Nervous System. A. Jakob and W. Weygandt.
79 Biology of the Syphilis Spirochete. II. (Entwicklungszyklus der Spirochaete pallida bei der Untersuchung im Dunkelfeld.) Meirowsky.
80 Serodiagnosis in Psychiatry. W. Mayer.
81 Non-Dialysable Constituents of Urine. (Die adialysabeln Harnbestandteile.) H. Pribram.
82 Roentgenoscopy of the Relations between the Nervous System and the Motor Functioning of the Stomach. F. Eisler and R. Lenk.
83 Tardy Traumatic Perforation of Meckel Diverticulum. Hübschmann.
84 Small Vesicovaginal Fistula Obliterated through the Bladder. J. Baer.
85 Efficacy of Hypnosis in Treatment of Rebellious Seasickness; Three Cases. J. Hoffmann.

Petersburger medizinische Zeitschrift, St. Petersburg

September 14, XXXVIII, No. 17, pp. 203-214

86 Geographical and Age Distribution of Venereal Diseases; Local Conditions. A. Spindler (Reval, Russia).
87 The Eyes and Headache. (Beziehungen des Auges zum Kopfschmerz.) R. v. Mende.

Wiener klinische Wochenschrift, Vienna

September 18, XXVI, No. 38, pp. 1485-1520

88 *Early Diagnosis of Gastric Cancer. (Frühdiagnose des Magenkarzinoms.) F. Leitner.
89 Spirochetes in Progressive Paralysis. H. Geber, L. Benedek and K. Tatar.
90 Biologic Test for Thymus Tissue. (Erfahrungen mit dem Abderhaldenschen Dialysierverfahren—Abbau von Thymusgewebe durch normales Serum.) H. Deutsch.
91 Filter for Radium Rays. R. Bassenge.
92 *Radium in Dermatology. G. Riehl and M. Schramek. Commenced in No. 37.
93 *Geographical Distribution of Cancer. S. Rosenfeld. Commenced in No. 37.

88. **Early Diagnosis of Gastric Cancer.**—Leitner comes to discouraging conclusions as to the possibility of diagnosing incipient cancer in the stomach. The Röhmer-Grafe, Salomon, Oppenheimer and other tests proved in his research to have inherent sources of error which render their findings unreliable.

92. **Radium in Therapeutics.**—Riehl and Schramek conclude here their extensive account of the application of radium at the university dermatology clinic at Vienna. Of the 246 patients, 104 are still under treatment with the radium, sixty-five have been entirely cured (including eleven of the twenty-three cancer cases in which the course has been completed; nine were materially improved, and the condition became aggravated in three). Each one of the nineteen skin diseases represented has some cured cases to its credit, a total of sixty-five cured and seventy-three improved. The only cases in which the radium seemed to do harm were in the three cancer cases mentioned above (the neoplasms were in the cheek) and one case of lymphosarcoma.

93. **Geographical Distribution of Cancer.**—Among the points emphasized by Rosenfeld in his long study of this subject is that the "cancer islands"—the communities where cancer is especially prevalent in a generally cancer-scarce country—should be investigated with special pains, as also the cancer-scarce country around, and then the data thus recorded should be compared point by point. He says of the so-called "cancer houses" that they are generally old buildings with cheaper rents, and the sick and incapacitated naturally gravitate there from their increasing poverty. He thinks that the alleged rarity of cancer in the tropics is more a matter of defective vital statistics than an actual fact. He states that the cancer mortality in Japan (Kioto) ranges from 83 to 95 per hundred thousand inhabitants; at Moscow from 56 to 103; at St. Petersburg from 78 to 98; in southern Italy from 6 to 70; in northern Italy from 51 to 68; in the Netherlands from 75 to 105, while adjoining provinces in Germany have only from 33.5 to 35. It is a curious coincidence, brought out by his figures, that the mortality from cancer is unusually high in the district of Joachimsthal, the source of the radium supply. Another interesting fact noted is that in a country in which cancer is generally prevalent, no districts are found free from cancer—no "cancer-free islands"—while there are numerous "cancer islands" in regions generally free from it. These facts seem especially significant.

Zentralblatt für Chirurgie, Leipsic

September 20, XL, No. 38, pp. 1481-1512

94 Technic for Suturing Perforated Gastric and Duodenal Ulcer. Seidel.

Zentralblatt für Gynäkologie, Leipsic

September 20, XXXVII, No. 38, pp. 1321-1428

95 *Intravenous Injection of Distilled Water in Treatment of Puerperal Sepsis. W. J. Ilkewitsch.

95. **Infusion of Distilled Water in Puerperal Fever.**—Ilkewitsch applied in a number of cases the method of intravenous injection of 1 per thousand silver nitrate solution, introduced by Hume of Baltimore. The results were extremely satisfactory in eighty-three of 138 cases of puerperal fever, but later experience with varying concentrations of the solution convinced him that the distilled water alone, without any drug, answers the purpose equally well. He found in experiments on rabbits that intravenous injection up to 8 or 8.3 c.c. per kilo of body-weight was borne without harm. He has applied this measure in 142 cases of puerperal fever in the last eighteen months, and reports that forty-two patients were cured out of sixty-two with pyemia and septicemia. The communication issues from the maternity at Moscow. It was found that even in the severest cases of septicemia with only 1,500,000 reds, improvement followed the infusion of distilled water.

When the blood-corpuscles increase in number, the outcome is generally favorable but when the number of reds is constantly dropping, uninfluenced by the infusion, the outlook is grave and operative measures are necessary if there is a local process that can be attacked. When the heart, lungs or kidneys are seriously involved, the hemoglobin reduced to 50 per cent. or less, especially in older women, it may be impossible to ward off the fatal outcome by the infusion or any means in our power.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 1½, XXXIV, No. 110, pp. 1143-1158

96 Seroterapy of Tuberculosis. (Emazie granulose e sieroterapia antitubercolare.) A. Farini and A. Alliney.

September 16, No. 111, pp. 1159-1166

97 Operative Treatment of Hypertrophied Thymus. C. Visconti.

September 8, No. 112, pp. 1167-1174

98 Epidemic of Small-Pox. (Intorno ad un'epidemia di vaiuolo ed ai provvedimenti adottati per arrestarla.) A. Romano.

Riforma Medica, Naples

September 1½, XXIX, No. 37, pp. 1009-1036

99 The Leukocytes and Bone Marrow in Carbon Dioxid Poisoning. (I leucociti del sangue circolante e il midollo osseo nell'avvelenamento da anidride carbonica.) M. Ciovini.

100 Familial Epileptic Myoclonia. F. Fazio. Commenced in No. 36.

Semana Medica, Buenos Aires

August 21, XX, No. 34, pp. 401-456

101 Post-Traumatic Cerebrospinal Meningitis in Adult. A. H. Roffo.

102 Hemiplegia Complicating Influenza or Typhoid: Three Cases. M. del Sel.

103 The Wassermann Test. (Consideraciones sobre la reaccion de Wassermann.) J. Bacigalupo.

104 *Exaggerated Fear of Anaphylaxis in Serotherapy. A. Gualta.

104. **Fear of Anaphylaxis in Diphtheria.**—Guaita relates a number of instances in which the parents refused to permit the use of antitoxin in diphtheria for fear of anaphylaxis as the child had been injected with antitoxin on some previous occasion. He states that in all his experience and in that of Penna at the contagious disease hospital, Cabrera's at the diphtheria pavillion in the children's hospital, and of others he cites, no instance of anaphylaxis has been encountered although some of the patients had received several injections of antitoxin. He declares that this dread of anaphylaxis is irrational and extremely dangerous. Even at the worst, anaphylaxis is comparatively harmless while the diphtheria is a dangerous enemy. In conclusion, he relates a few examples of fulminating diphtheria, calling on every one to cherish a wholesome dread of this treacherous disease and abandon their fear of the anaphylaxis scarecrow.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

August 23, II, No. 8, pp. 531-608

105 *Lithiasis in the East Indies. (Steen-snede in Indie.) J. A. Koch.

106 *Chronic Diarrheas. O. J. Wijnhausen.

107 *Radium in Ophthalmology. (Eenige gevallen van oogziekte behandeld met mesothorium-bestraling.) N. J. Cuperus.

108 Surgical Experiences during the Balkan War. F. Hijmans.

August 30, No. 9, pp. 609-728

109 *Development of Physiology in the Netherlands. (Aperçu du développement de la physiologie en Hollande.) G. van Rijnberk.

110 The Formation of Creatin in the Voluntary Muscles in Vertebrate Animals during Tonus. C. A. Pekelharing.

111 The Sacral-Dorsal-Median Column in Tabes and Its Structure. (De postero-mediale sacraal bundel bij tabes, en de daaraan te ontleenen bewijsvoering, dat die bundel geen endogene ruggemergvezels bevat, maar uitst neerdalende dorsale wortelvezels is opgebouwd.) C. Winkler.

112 Multiple Resonance. H. Zwaardemaker.

113 The Development of the Electrocardiogram. I. K. A. Wertheim-Salomonson.

114 Trophic Disturbances. J. W. Langelaan.

115 *Marshall's Method for Estimation of Urea in Urine. L. J. Geselschap.

116 Phonetics as Studied by Shapes Assumed by Powders. (Over het gebruik van de stoffiguren van Kundt bij de studie van het vocaal-vraagstuk.) C. E. Benjamins.

117 The Slow Contraction and the Tonic Innervation of Muscle after Poisoning with Veratrin. (De langzame spierverkorting na vergiftiging met veratrine in verband met de tonische innervatie.) S. de Boer.

118 The Movements of the Lower Jaw in the Pronunciation of Vowels. (De beweging der onderkaak bij het uitspreken der klinkers.) T. E. ter Kuile.

119 Experiments with Intestinal Fistula in the Dog. (Eenige proeven met omega-darmfistels, volgens Lombroso bij honden.) H. T. Deelman.

120 A New Cardiogram. K. F. L. Kaiser.

121 The Caudal Heart of the Eel. (Het mechanogram en het electrogram van het caudale aalhart.) H. van Trigt.

122 Influence of Cholic Acid on Pancreas Lipase. (Over den invloed van cholzuur op lipase-werking.) B. C. P. Jansen.

123 Factors Influencing the Contraction of the Pyloric Sphincter Muscle. C. H. Delpart.

105. **Lithiasis in the East Indies.**—Koch states that bladder-stones, kidney-stones and gall-stones are five times as prevalent in the East Indies as in his own country, the Netherlands. The average specific gravity of the urine in Java is 1.023, to 1.016 in the Netherlands. The temperature averages so high that considerable perspiration is almost continuous, and this naturally causes the urine to be abnormally concentrated. In addition to this general factor in lithiasis, the production of concrements seems to be exceptionally high in certain localities, suggesting that the drinking-water must be incriminated. Still another factor in the production of concrements in the urine is the squatting position in urination which prevents complete evacuation of the bladder; Mohammedan males squat to urinate. Koch endorses the advantages of median over lateral lithotomy, especially when the concrements are small or lodged in some rear recess or there is vesical catarrh or the patients are elderly.

106. **Chronic Diarrheas.**—Wijnhausen lays great stress on the importance of macroscopic and microscopic examination of the stools. In chronic diarrhea and catarrhal affections of the bowels, examination of the mucus, food-particles and unchanged bilirubin in the stools will show whether we have to deal with disease in the small or large intestine. He denounces the administration of a laxative, as this increases the serous effusion, thereby furnishing a more favorable culture medium for the growth of the pathogenic bacteria and aggravating the inflammatory process. He insists that both in theory and in practice the so-called intestinal antiseptics are of no value; the bacteria in the intestines will continue to proliferate even after administration of calomel. He advocates a milk diet or diet of dishes made with milk.

In certain cases the diarrhea is the result of disturbances in stomach functioning. It is a well-known fact that persons suffering from achylia gastrica may not display any symptoms on the part of the stomach, but the discovery of connective-tissue fibers in the stools, revealing the lack of normal gastric digestion, points to the defective functioning of the stomach which throws greater work on the intestines and pancreas. Besides this, with gastric achylia the undigested meat-particles from the food form a favorable soil for the growth of bacteria and thereby lead to diarrhea. Gastric atony and stenosis of the pylorus can also cause disturbances resulting in diarrhea. He shows how still other causes may be involved in the production of chronic diarrheas, and how careful study of the stools will disclose the true cause of the trouble and point the way to effectual treatment.

107. **Radium in Ophthalmology.**—Cuperus reports very favorable results from exposures of the eye to radium in treatment of chronic conjunctivitis, iritis and keratitis.

109. **Contributions of the Netherlands to the Progress of Physiology.**—The ninth international congress on physiology was held last month at Groningen in the Netherlands, and the *Tijdschrift* published this special number in honor of the occasion, nearly all the fifteen articles being on physiologic subjects. The *Tijdschrift* also presented each member of the congress with a souvenir-medal bearing a portrait of Donders, and the opening article in this issue is a historical sketch, with portraits of the twelve Dutch scientists who have contributed materially to the progress of physiology. The name of Donders is connected particularly with the discovery of accommodation, refraction and color vision, but he also discovered the chemistry and mechanism of the respiration. Swammerdam, Sylvius, R. de Graaf, Moleschott and Boerhaave are the other most familiar names on the list. Illustrations reproduced from the works of de Graaf, 1641-1673, show dogs with experimental fistulas into the pancreas, salivary glands, etc., the pictures looking as if they might have been taken from a recent work by Pawlow.

115. **Marshall's Method for Estimation of Urea in the Urine.**—Geselschap has been making comparative tests of different methods in vogue for this purpose, especially the technic recently published by E. K. Marshall (described in THE JOURNAL, April 26, 1913, p. 1327) Geselschap found this method extremely reliable while he lauds the simplicity of the technic and the ease and promptness of the findings.

Hospitalstidende, Copenhagen

September 17, LVI, No. 38, pp. 1085-1124

124 The Hospitals at Copenhagen. (Kommunehospitalet—1863-1913—og det nye Bispebjærg Hospital.) C. Wessel.

Nordiskt Medicinskt Arkiv, Stockholm

XLVI, Surgical Section No. 1. Last indexed August 2, p. 378

125 *Tubal Pregnancy. (Zur Klinik der tubären Schwangerschaft.) I. P. Hartmann.

126 *End-Results of Operative Treatment of Fractures. (Ueber blutige Frakturbehandlung—Osteosynthese.) A. Troell.

125. **Tubal Pregnancy.**—Hartmann devotes eighty-four pages to a critical review of ninety-three cases of tubal pregnancy; fifty-one of the patients were over 30, and sixty-one had passed through one or more pregnancies, three, six; one patient, ten. In eighteen cases there had been much hemorrhage; in three it had been sudden and profuse, one patient being thus attacked on a sea voyage; one felled suddenly by it on the street, and the third in the hospital where she was being prepared for a vaginal operation. In seven others the anemia developed more gradually, and in the other eight there had been a period of slight attacks of pain long before serious symptoms developed. In nineteen cases there was little if any hemorrhage; in twelve in this group the microscope first explained the nature of the trouble. Vertigo, nausea and vomiting were among the early symptoms in a number of cases. When there is slight hemorrhage into the fetal membranes and the ovum dies and becomes transformed into a mole, the presence of the mole as a rule exposes the patient to no danger, he states. The mole gradually becomes organized and is reabsorbed. This occurs so completely that cases are known in which conception occurred by way of a tube which had at one time been the seat of a tubal pregnancy. He regards curetting as liable to prove dangerous, but says that no harm happened to result although curetting had been done on a mistaken diagnosis in a few cases before the ectopic pregnancy was suspected. In sixteen cases a conservative incision was made in the vagina back of the uterine cervix; this is applicable only when certain that the worst has passed and that we have merely the relics of the process to contend with. Drainage must be kept up for two weeks.

Laparotomy is being preferred more and more; it was applied in sixty-six cases; twenty of the women became pregnant again later. Excluding the patients who required removal of the adnexa on both sides, this brings to 40 per cent. the number of women who conceived anew after operative treatment of the tubal pregnancy. When proper treatment is applied at once and no serious relics of the ectopic pregnancy are left, the prospects of conceiving anew are scarcely impaired, while there is comparatively little prospect of pregnancy later when there has been a large hematocele. The proportions in his cases were conception later in 63.3 per cent. of the fourteen women with sudden profuse hemorrhage in the abdominal cavity receiving prompt treatment; 40 per cent. in fifteen with development of a mole with comparatively little bleeding; 36.3 per cent. of eleven with repeated slight hemorrhage into the abdominal cavity, and only 10 per cent. among ten women with very large hematoceles.

126. **Operative Treatment of Fractures.**—Troell gives ten four-page tables showing the details of the eighty-seven cases of fracture given operative treatment, in which a recent reexamination was possible. The number of fractures thus treated with osteosynthesis was 194 during the years 1885-1910, 6 per cent. of the total fracture cases. The ultimate outcome was found satisfactory in only 83.6 per cent.; it was a trifle better, 89.5 per cent., in the joint cases. The best results were obtained with fracture of the neck of the femur and of the humerus in or just above the condyles. The operation proved most successful when it was done soon after the fracture; the limb must be exercised after a delay of not more than two weeks. Roentgenography shows that deforming arthritis frequently develops in the adjoining joint injured more or less in the trauma causing the fracture; this is the explanation for the mediocre results sometimes obtained. Years may elapse before there are any clinical manifestations on the part of the joint. Static and mechanical disturbances are responsible for the deforming lesion, not the osteosynthesis. Examination of the records of two large insurance companies in Sweden shows that 15 and 18 per cent. of the fracture cases resulted in permanent disability in time. The estimation as to the ultimate functioning of a fractured limb has not much chance of being correct if it is made before the lapse of from two to four years after the injury.

Ugeskrift for Læger, Copenhagen

September 18, LXXV, No. 38, pp. 1561-1598

127 The Hospitals at Copenhagen. S. Bang.

Upsala Läkareförenings Förhandlingar

XVIII, Nos. 5-6, pp. 271-456. Last indexed July 19, p. 234

128 *Means to Prevent Operative Pneumothorax. K. H. Giertz.

129 Case of Acute Primary Inflammation of the Cecum. (Om akut primär typhlit.) G. Nyström.

130 *Symptomatology of Paralysis from a Brain Tumor. (Fall af tumor cerebri.) G. Bergmark.

131 Absorption of Ultraviolet Rays by the Lacrymal Secretion. (Om tårvätskans absorption af ultraviolett ljus.) C. Lindahl.

132 Tuberculin-Substance in Cerebrospinal Fluid in Tuberculous Meningitis. G. Bergmark.

128. **Means to Prevent Operative Pneumothorax.**—Giertz describes a differential-pressure chamber that has been added to the equipment of the Umea hospital. It is modeled on Sauerbruch's chamber but is said to have several important innovations. In connection with this description, Giertz gives illustrations of the other contrivances of the kind in use, including Willy Meyer's at New York. The article is thus a comprehensive review of the achievements to date in the mechanical control of operative pneumothorax, with twenty-five illustrations, two plates and nearly ten pages of bibliography arranged alphabetically for each of the last nine years. The Umea chamber is arranged for the patient to breathe under negative pressure. The chamber is large enough for the patient, operator, two assistants and three nurses with ample space for all; the anesthetist is thus in the same room with the operator. The patient breathes through a mask; the air under negative pressure is brought from without the chamber through a large flexible aluminum tube. Oxygen and an anesthetic can be added to the air in the tube as desired. The patient is otherwise free and there is no binding at the neck as with some of the other arrangements for differential pressure. Of course with a mask there is always a liability to trouble if the patient vomits, and Küttner has reported the death of a patient from acute dilatation of the stomach from air having been forced into it. This is liable to occur with any technic for differential pressure—mask or no mask—except with Meltzer's intratracheal insufflation. Even with this, there is danger of subcutaneous emphysema; Luke has recently reported a case of this following intratracheal anesthesia. The mask technic has the great advantage over insufflation that it does not require preliminary general anesthesia, like the latter. Giertz claims for his apparatus that it applies the principle of negative pressure while combining with it all the advantages of overpressure, and that it requires no special mechanical skill to construct it.

130. **Symptomatology of Cerebral Paralysis.**—Bergmark removed a sarcoma from the left upper part of the precentral convolution in a man of 57. The sarcoma had been causing jacksonian epilepsy and paresis with signs of pressure on the brain and partial paralysis of the upper arm and shoulder. Its removal was followed by complete paralysis of the right side, sparing only the sternocleidomastoid and the abdominal muscles. Bergmark has found thirteen other cases on record of this partial proximal paralysis of the arm The case is studied from several standpoints, especially the behavior of the diaphragm and the percussion findings on the paralyzed side, the agraphia, etc.